Section 06 - 05

List of Contents

Removing / Installing the Digitizer Units

1 Frame (Assembly 100) 1
1.1 Opening the Doors 1
1.2 Removing and assembling the Side Panels 1
2 Erasure Unit (Assembly 150) 2
2.1 Replacement of the Erasure Unit 2
2.2 Replacing the Lamps of the Erasure Unit 3
3 Rotation Drive (Assembly 200) 3
4 VME-Rack (Assembly 300) 3
4.1 Replacement of a defective Harddisk 3
4.1.1 Replacing a defective Hard Disk 4
4.1.2 Installation of the Hard Disk 7
4.1.3 Start up of a new hard disk 7
5 Power Unit (Assembly 400) 8
5.1 Installation of the Vacuum Pump 8
5.1.1 Scope of Delivery 8
5.1.2 Fitting Instructions 9
5.2 Installation of the Solenoid Valves 11
5.2.1 General 11
5.2.2 Removing the Solenoid Valves 12
5.2.3 Installation of the Solenoid Valves 14
5.2.4 Finishing the Installation 14
6 Scan Unit (Assembly 500) 15
6.1 Sliding out the Scan Unit 15
6.2 Removing and Installing the Scan Unit 16
6.2.1 General 16
6.2.2 Removing the Scan Unit 17
6.2.3 Re-Installation of the Scan Unit 20
6.3 Replacing the Laser 21
6.3.1 General 21
6.3.2 Replacement Procedure 22
6.3.3 Putting the new Laser in Operation 23
6.4 Replacing the Galvanometer 24
6.4.1 Replacement Procedure 24
6.4.2 Putting the New Galvo in Operation 25
6.5 Replacing the Galvomount 27
6.5.1 General 27
6.5.2 Removal of the Scan Unit 28
6.5.3 Replacement of the Galvomount 28
6.5.4 Re-assembling the Scan Unit 30
6.5.5 Adjustment of the Laser Beam 30
6.5.6 Calibration 31

6.6 Replacing the Photomultiplier 32
6.7 Replacing the Rotating Shutter 34
6.8 Replacing the PIN DIODES PCB 36
6.8.1 General 36
6.8.2 Replacement of the Pin Diodes PCB 36
6.9 Replacing the Postscan Bar 38
6.10 Inserting the Cleaning Brush in the Scan Unit 42
6.11 Reinserting the outer Scan Rollers 43
7 IP – Transport Units (Assemblies 600, 650) 44
7.1 Sliding out the IP – Transport Units 44
7.2 Installation of IP – Transport Robots (Input / Output) 44
7.2.1 Preparations 45
7.2.2 Removal of the old Robot 45
7.2.3 Installation of the new Robot 46
7.2.4 Finishing the Installation 46
8 Cassette Units (Assemblies 700, 750) 47
8.1 Swiveling the Cassette Units in and out 47
9 I / O Buffer (Assembly 900, 930, 950) 48
9.1 Exchange Springs in Output Buffer 48

Removing / Installing the Digitizer Units

1 Frame (Assembly 100)

1.1 Opening the Doors

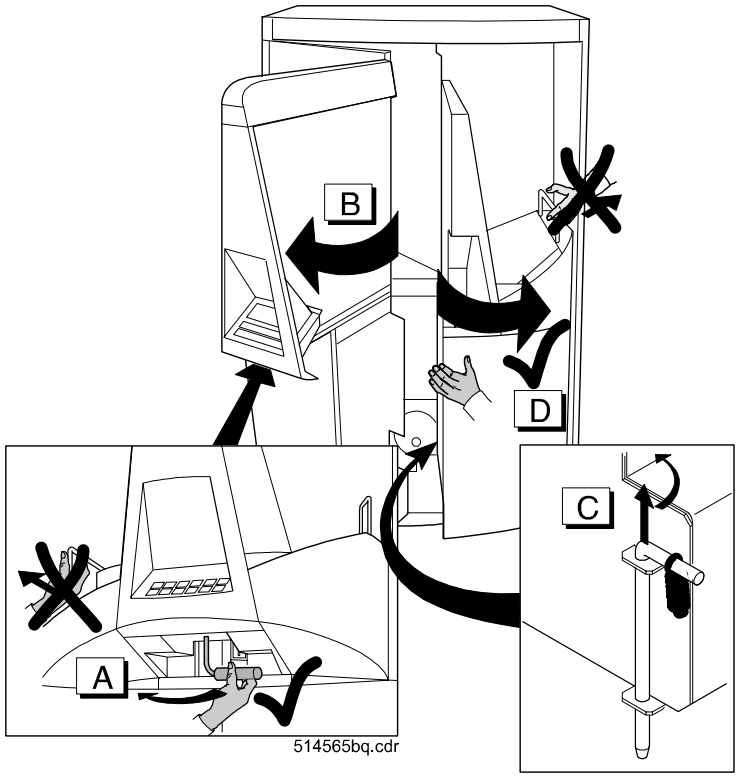


Figure 1

1.2 Removing and assembling the Side Panels

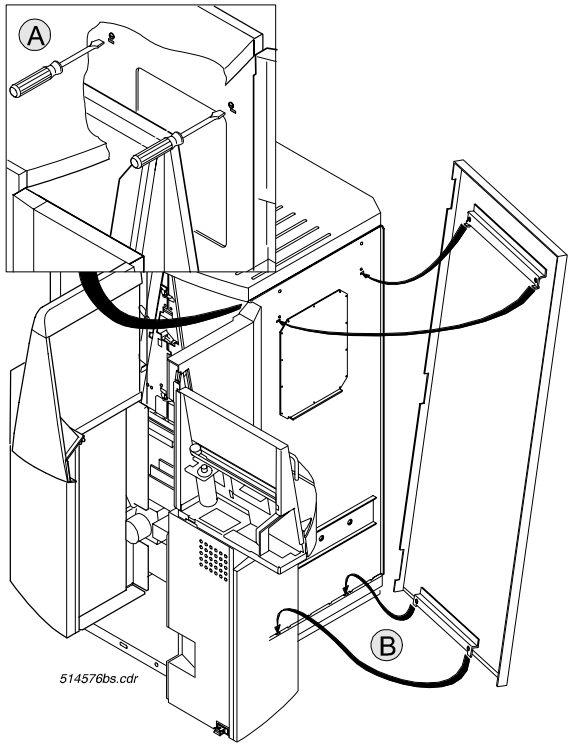


Figure 2

2 Erasure Unit (Assembly 150)

2.1 Replacement of the Erasure Unit

- open the doors of the machine.
- **disconnect the erasure unit** (A) before pulling out the transport unit!
- loosen screws (B, C, 7mm) at the IP transport unit and push the lock down.
- loosen screw (D) at the IP transport unit left and press bar (E) down to unlock.
- pull out the IP-transport unit.

The assembly has a safety stop when being pulled out!

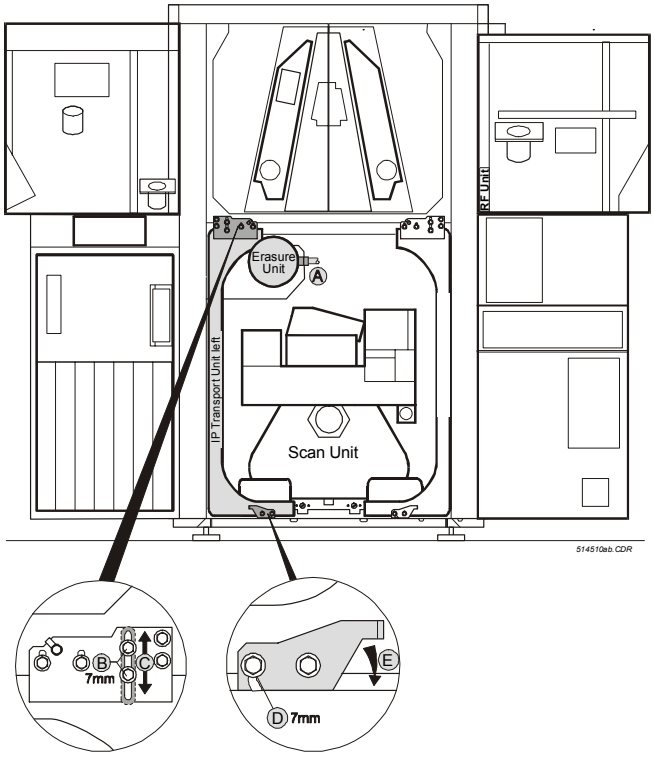


Figure 3

- push the lock lever (A),
- turn the erasure unit to the right until the glass plate is on the top (B),
- lift the erasure unit out (C).

Do not touch the glass!

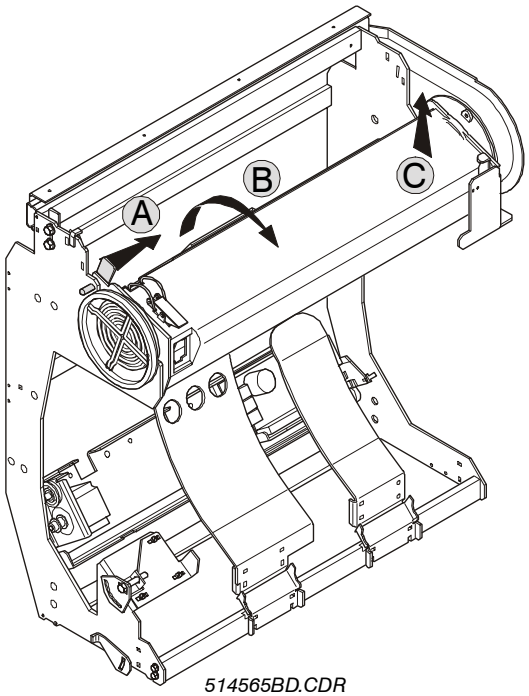


Figure 4

2.2 Replacing the Lamps of the Erasure Unit

- open the quick-action closures (A).
- lift the cover with the glass (B).

Touch the lamps only with a cloth!

- to avoid stretching of the springs in the lamp socket remove and insert the lamps as shown in (C).
- after removal of the lamps check the contacts for burning. If necessary replace the contacts.
- when inserting the lamps make sure that the droplet in the glass body faces up.

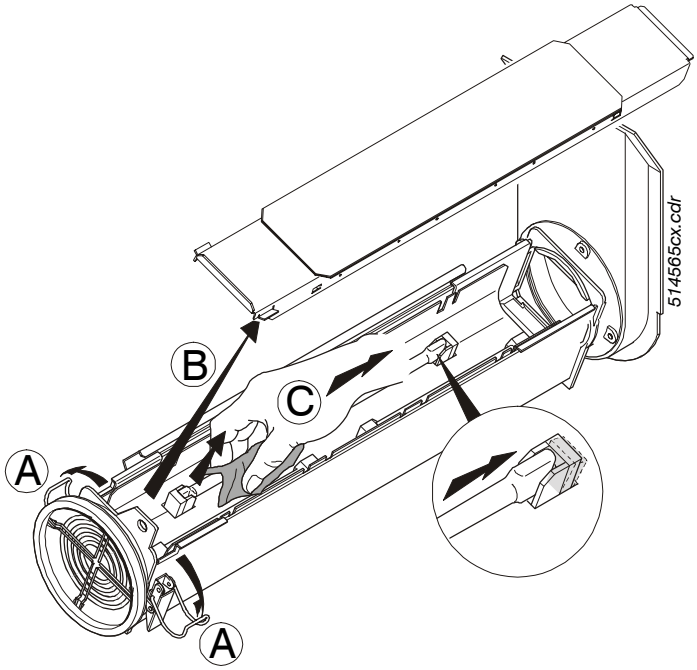


Figure 5

3 Rotation Drive (Assembly 200)

no replacements described

4 VME-Rack (Assembly 300)

4.1 Replacement of a defective Harddisk

Phillips screw driver

1 hard disk formatter floppy and 3 SW - floppies (enclosure of every digitizer).

The disks are labeled with:
COPXXXX_Y_Z (XXXX=Software version, Y=disk no., X=number of all disks)

Additionally recommended:

Service - PC. Alternatively, you can also use the PC of the Preview- or PRID-Station.

Interface cable (RS232) Digitizer -> Service PC or ID-Station

Hardware Requirements

It is highly recommended to order the genuine spare part, because up to Sw version COP1215 only a 4GB HDD is supported.

Order Number: CM+9.0486.1260.0

4.1.1 Replacing a defective Hard Disk

In order to avoid any damage at the storage board, replace the HDD very cautiously.

1. Preparation

- Switch off the digitizer.
- Open the doors.
  The VME-rack with the storage board (1) is placed in the frame of the left door.

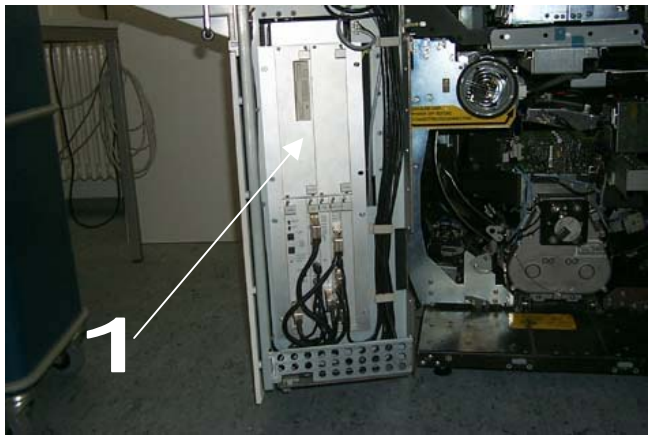


Figure 6

2. Removing the storage board (1)

- Loosen the four Phillips screws at the storage board (black circles).

These are captive screws. They cannot be removed completely.

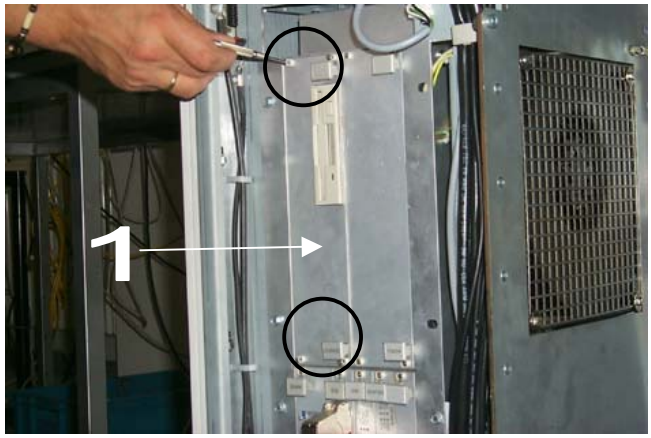


Figure 7

- Pull the storage board (1) cautiously out.

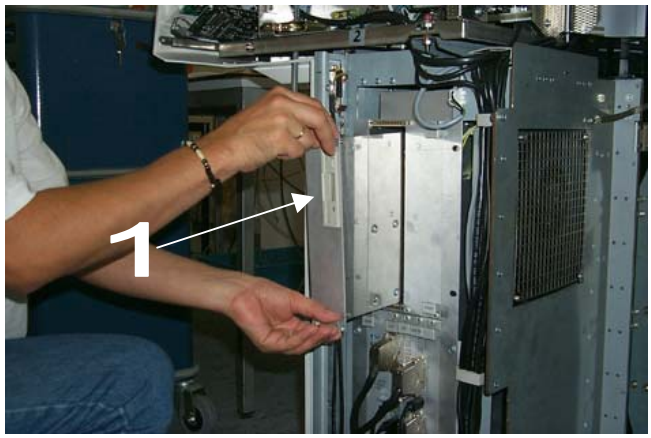


Figure 8

3. Disconnecting the electric connections

- disconnect the connector(3) of the 5-V-power supply from the storage board (1).

Assignment:

1 storage board
2 connector
3 terminal rail
4 ribbon cable for hard disk
5 ribbon cable for floppy disk
6 hard disk
7 floppy disk drive

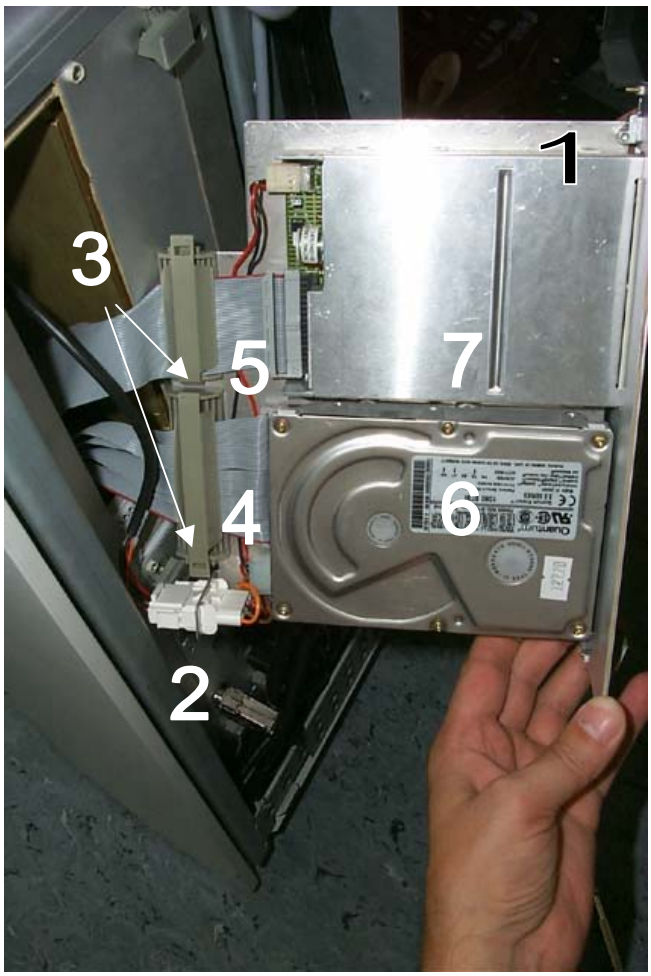


Figure 9

- loosen the two terminal rails (3).
- disconnect the ribbon cables (4) and (5) from floppy disk drive (7) and hard disk (6).

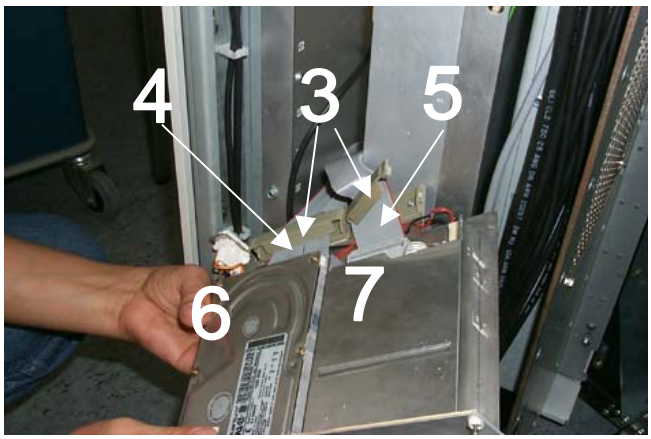


Figure 10

4. Preparing the removal of the hard disk

- Figure 11 shows the storage board (1) with the inserted hard disk (6).

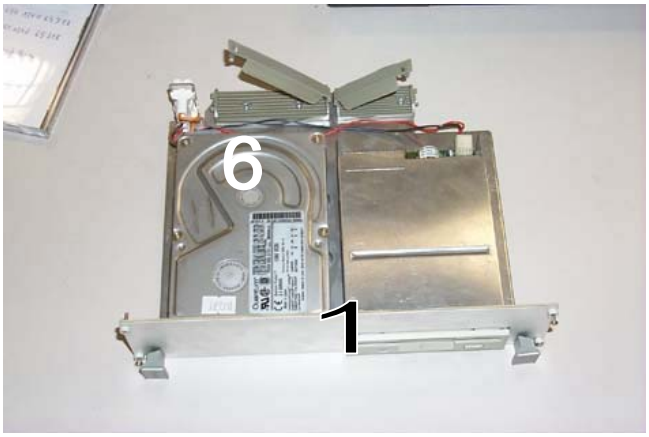


Figure 11

5. Separating the hard disk (6) from the storage board (1)

- Loosen four round-head screws (8) at the rear of the storage board (1).

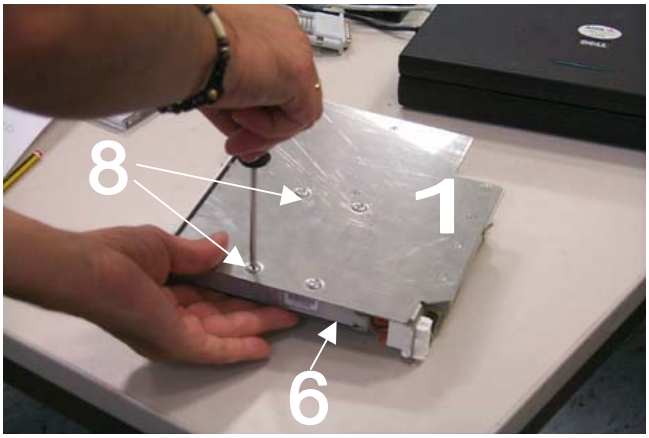


Figure 12

Hold the hard disk firmly in one hand (see Figure 12), while you remove the four round-head screws with a mid-size screw driver.

6. Removal of the Hard Disk

- Disconnect the connector of the 5-V power supply (9) from the hard disk.
- remove the hard disk (6) from the storage board (1).

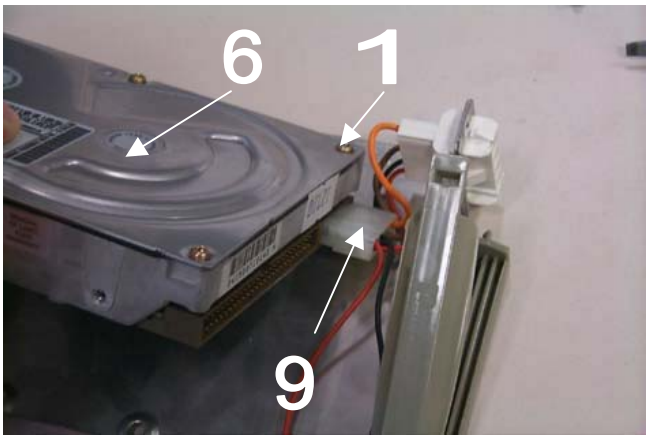


Figure 13

4.1.2 Installation of the Hard Disk

Be cautious not to damage the HDD during installation.

- Install the new hard disk in reverse order as described in 4.1.1

4.1.3 Start up of a new hard disk

- disconnect the digitizer from the network.
- connect terminal (PC) to service port and start a terminal program.
- insert the Hard Disk Formatter Floppy (Disk1 of 4) into the diskdrive of the digitizer.
- switch on the digitizer.
- wait until you get the final message on the terminal program or
  wait until control LED of the floppy drive is off.
- insert the second floppy (Disk2 of 4) into the diskdrive of the digitizer.
- reset the digitizer with the reset button.
- wait until you get the final message on the terminal program or
  wait until control LED of the floppy drive is off.
- repeat the last 3 steps for Disk 3 and 4.
- restore machine specific data (controlled via key-pad).
- select `Install from floppy`
  `Machine specific data`
- follow the online instructions.
- reset the digitizer with the reset button.
- reconnect the network.

5 Power Unit (Assembly 400)

5.1 Installation of the Vacuum Pump

5.1.1 Scope of Delivery

The service kit consists of the following parts:

- 1x installation-instructions.
- 1x vacuum pump.

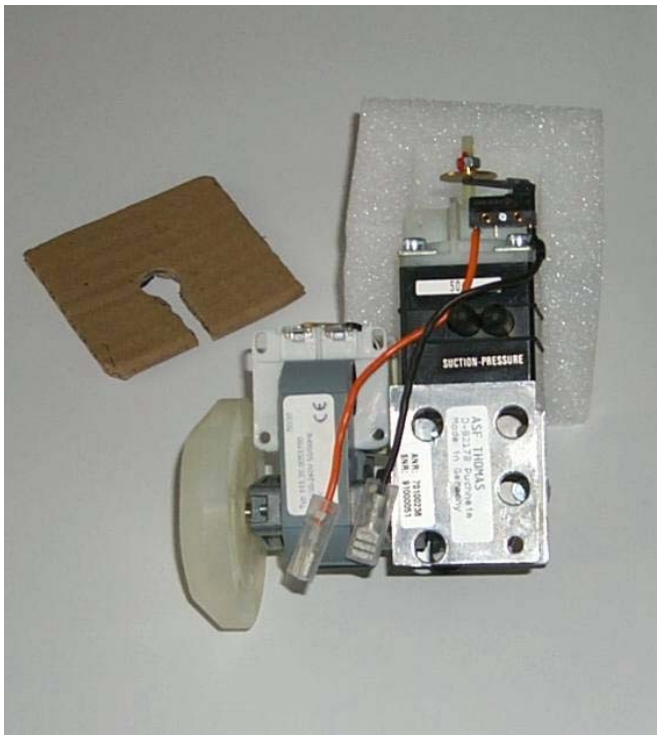


Figure 14

Socket wrench 7mm, 5.5mm
Ohmmeter
Vacuum tester

Installation Time
approx. 30 min.

5.1.2 Fitting Instructions

- loosen the screws (white arrows).
- push up the panel and remove it.

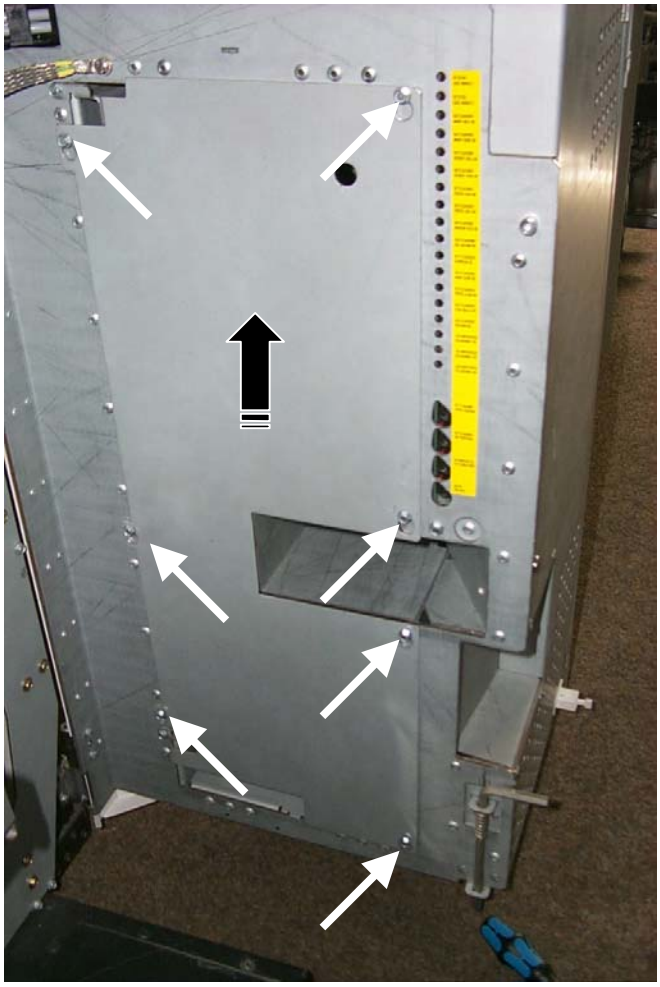


Figure 15

- disconnect the cables of the vacuum pump (A).

Figure 16

- pull off the hose (B).
- loosen the screws (C, D, E) and remove the vacuum pump.

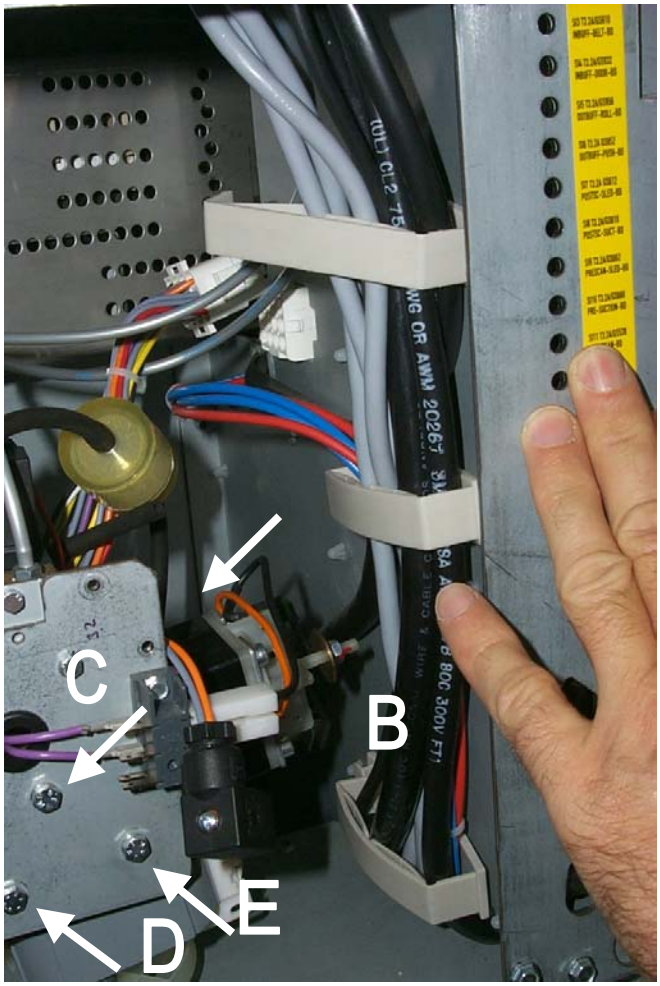


Figure 17

5.2 Installation of the Solenoid Valves

5.2.1 General

Scope of Delivery

Kit solenoid valves:

3x solenoid valves 24V/DC
1x triple-filter
3x hoses l = 50mm
l = 80mm
l = 150mm
1x plug-in nipple N-M5-PK-4
2x screw fastening for plug-in nipple
4x plug-in nipple LCN-M5-PK-4
1x installation-instructions

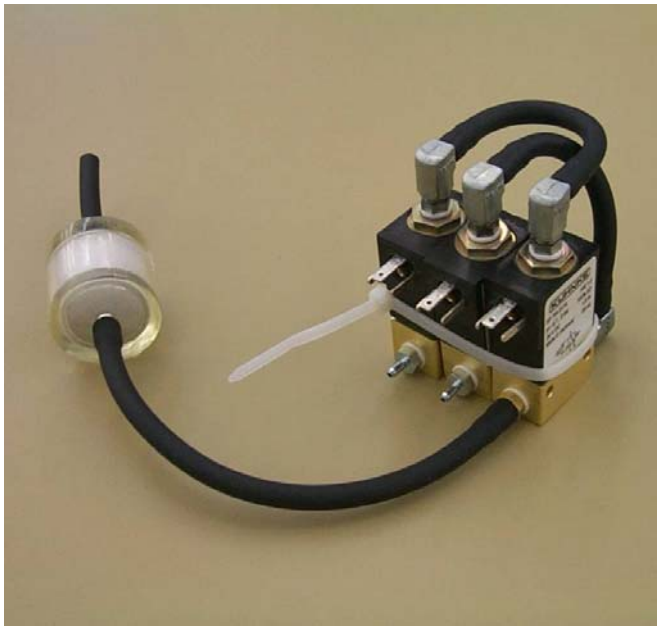


Figure 18

Socket wrench 7mm, 5.5mm

Installation Time
approx. 45 min.

5.2.2 Removing the Solenoid Valves

- loosen the screws (white arrows).
- push up the panel and remove it.

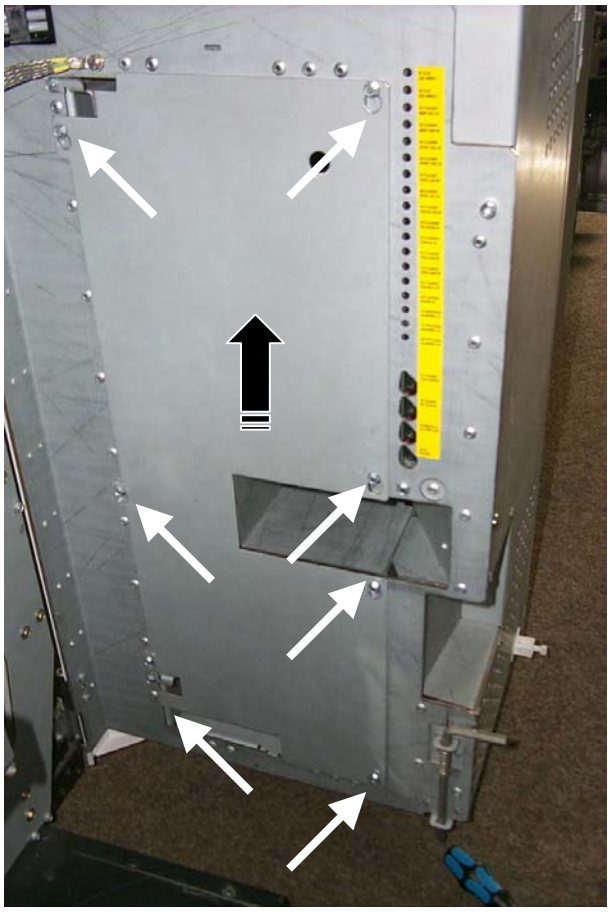


Figure 19

- pull off the hoses (2x, A).

Figure 20

Remember the order how the hoses are plugged on the valves.

- pull off the hose at the vacuum pump (arrow).

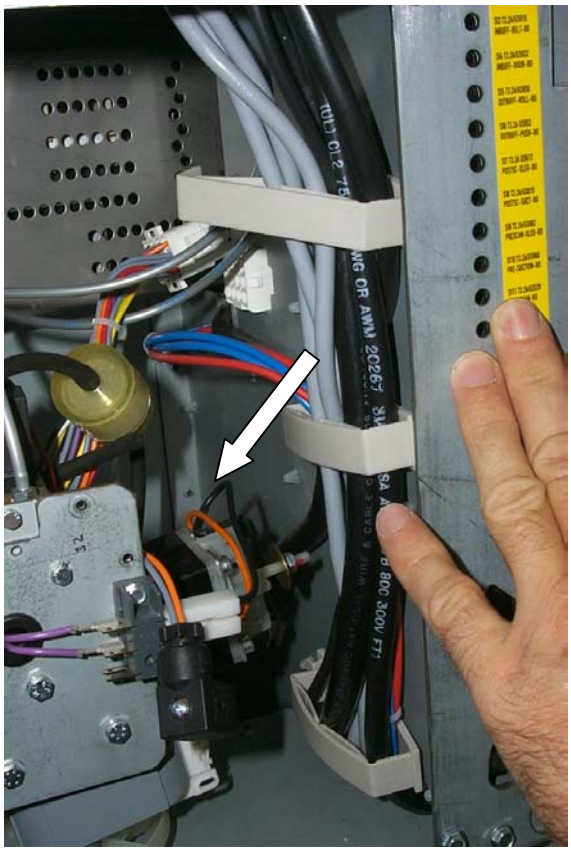


Figure 21

- loosen the screws (6x, circle).

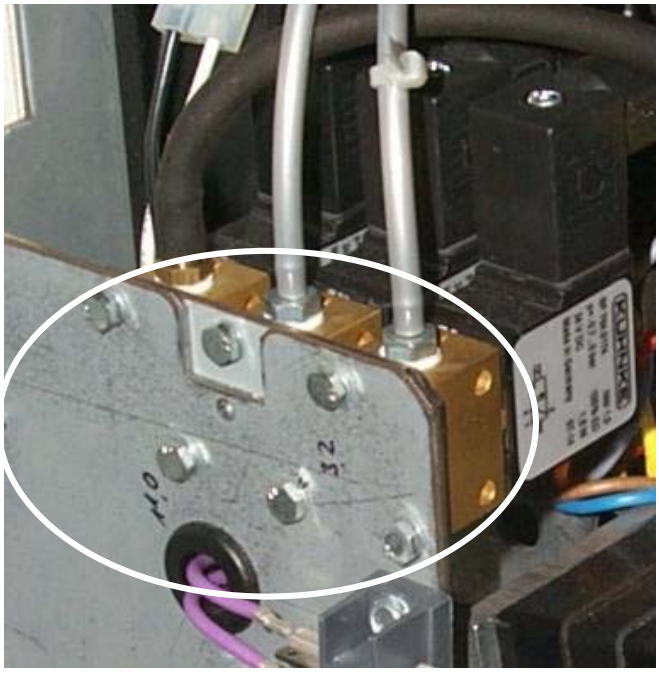


Figure 22

For each solenoid valve:

- loosen the screw on the top of the plug (arrow).
- disconnect the plug.

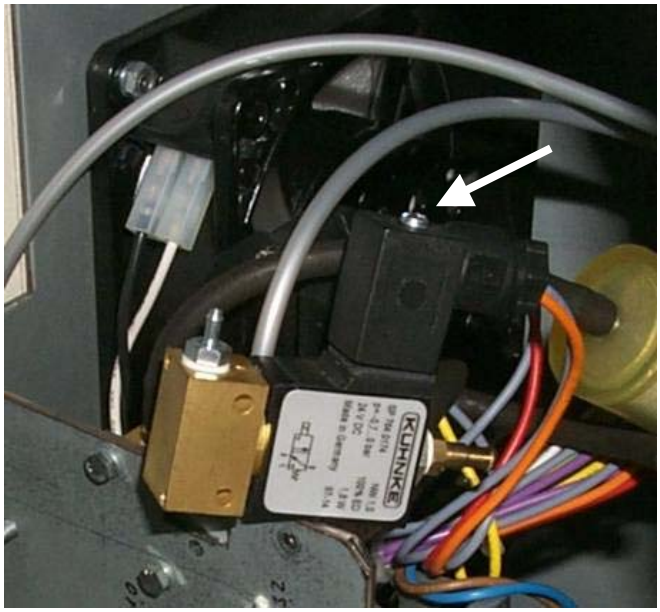


Figure 23

5.2.3 Installation of the Solenoid Valves

The valves are fixed together with a cable tie. Remove this tie as soon as the valves are installed.

- put the valves at the rear of the frame.
- put in the screws and tighten them (circle).
- remove the cable tie.
- connect the plugs and tighten the screws (arrows).
- pull on the remaining hoses.

- install the panel.

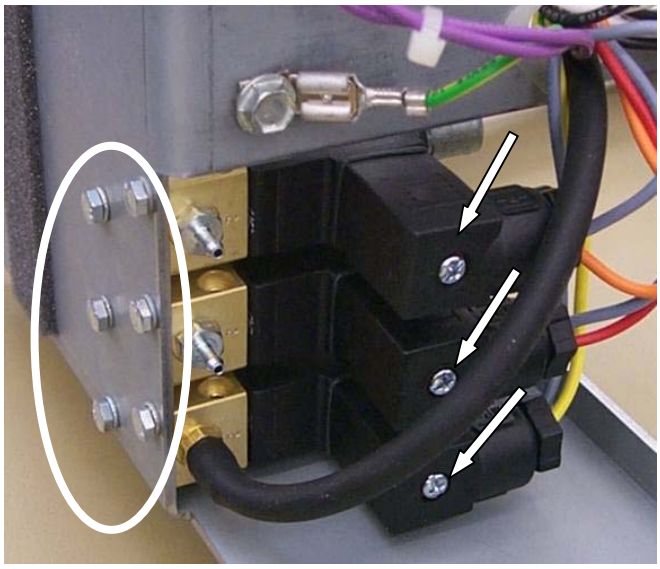


Figure 24

5.2.4 Finishing the Installation

- close the doors.
- start the digitizer.
- execute a test cycle.

6 Scan Unit (Assembly 500)

6.1 Sliding out the Scan Unit

- open the doors.
- unlock the scan unit by loosening two screws (1) - only half a turn.
- check that the feet rest on the floor. Otherwise it is possible, that the digitizer tilts when you slide out the scan unit!

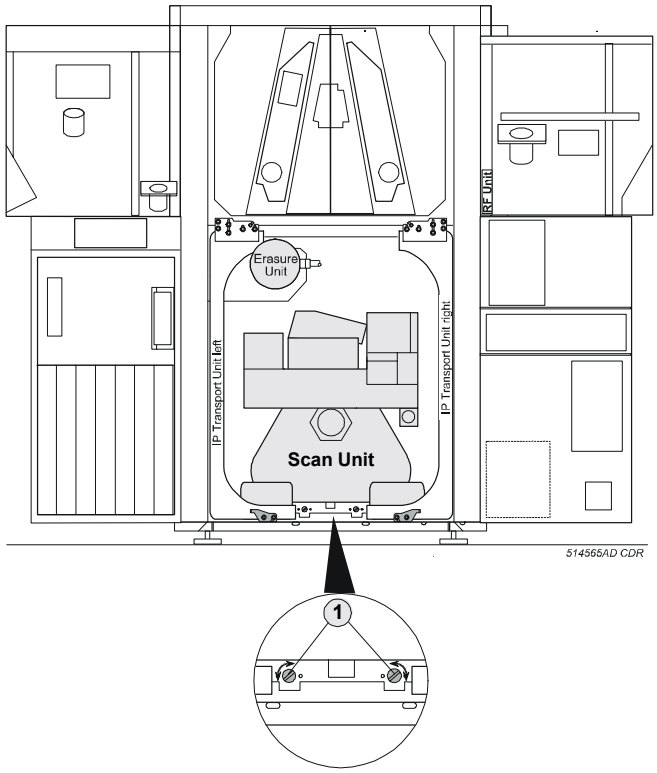


Figure 25

- loosen the screws (A) on both scanner rails,and remove the safety stops (B).
- pull the scan unit out half.

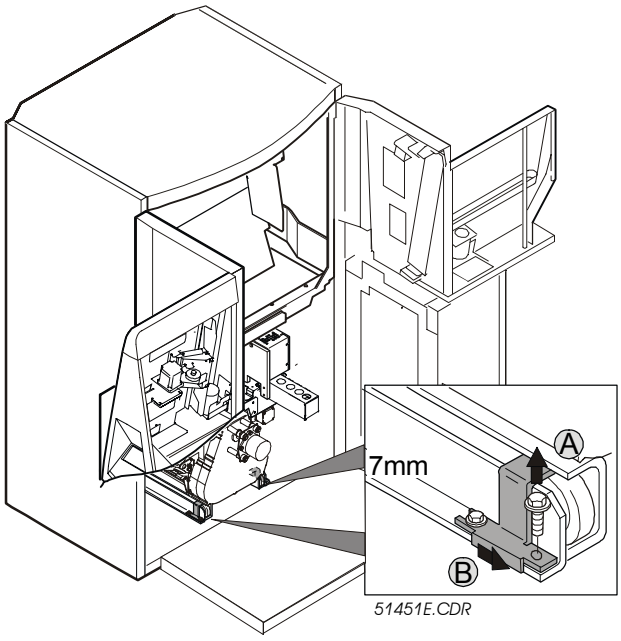


Figure 26

- unhook the energy chain (B).
- position a support block (C) - wood or a similar hard material - in front of the machine.
- slide out the scan unit completely to its stop (D) and....
- ...push it slightly downwards to lift the rollers over the safety stops

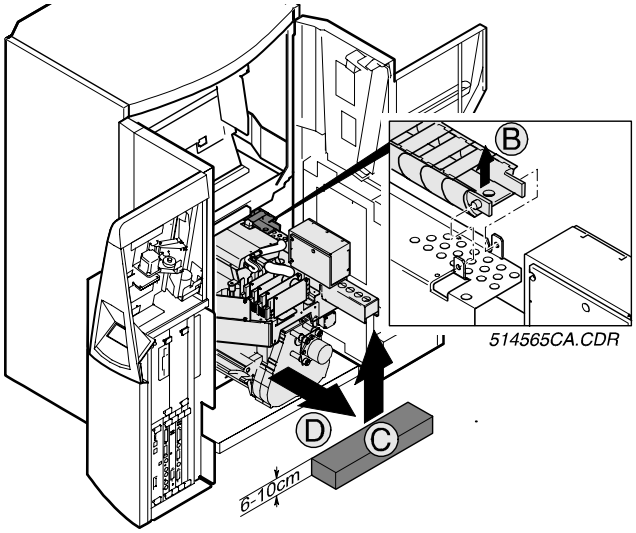


Figure 27

- lift the scan unit up and put it down on the support block as shown beside.

Note:

Take care that the cables of the HT-box do not accidentially unplug, control them after the re-installation of the scan unit.

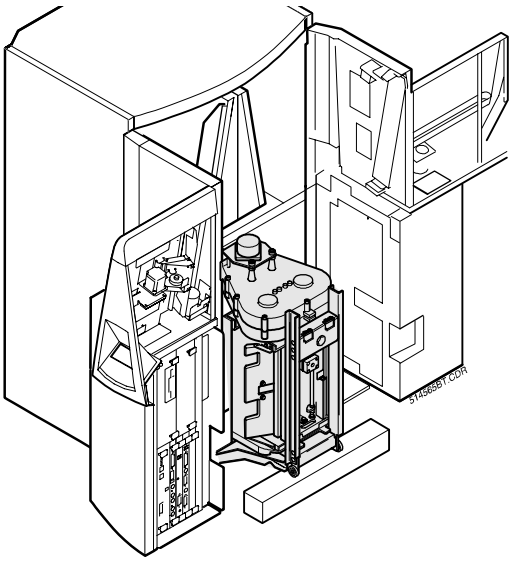


Figure 28

6.2 Removing and Installing the Scan Unit

6.2.1 General

These installation instructions describe the exchange of the complete scan unit.

screw driver
spanner 5, 7, 9 mm

- Required time: approx. 1,5 h

The following step has to be done before the scan unit is exchanged.

- Make a backup from the current status of the machine. (This copy is not needed for the installation procedure of the scanner, but should nevertheless be kept until the installation is concluded).

6.2.2 Removing the Scan Unit

- switch off the digitizer
- loosen the two screws holding the scanner in its rail and pull the scanner out to its stop.
- disconnect all the cables leading from the energy chain to the scan unit as shown on the following pages.
- disconnect the laser cable and discharge it on the frame of the scan unit.

Figure 29

- disconnect all the cables from the HT – box.

(The different cables can't be mistaken).

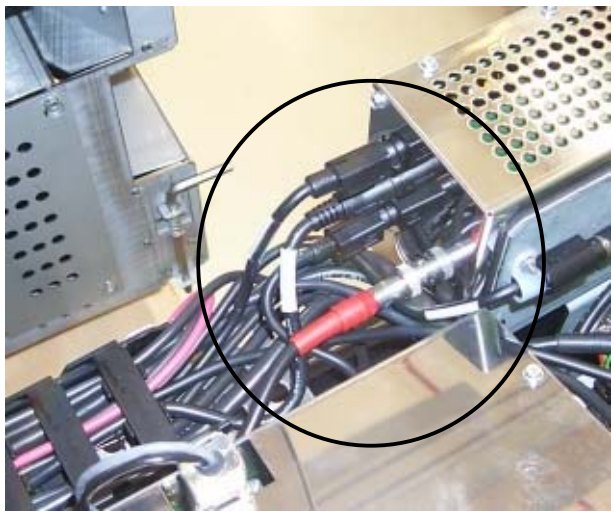


Figure 30

- loosen the left screw at the HT – box ...
- ... and disconnect the cable.

Figure 31

- disconnect the right cable from the Galvo – box (white arrow).
- loosen the screw and disconnect the cable (white circle).

(Take care not to damage the thread when installing the new scan unit).

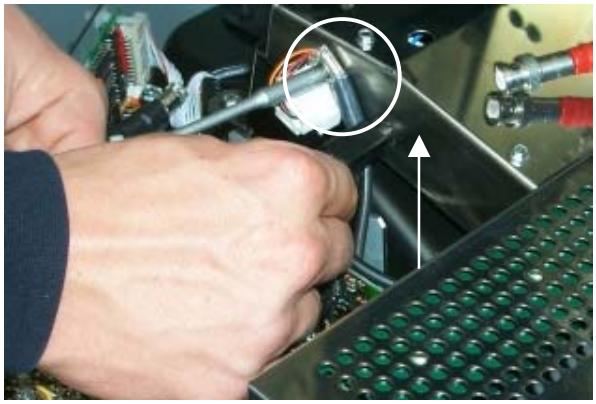


Figure 32

- loosen the screw (white circle)
- disconnect the cable

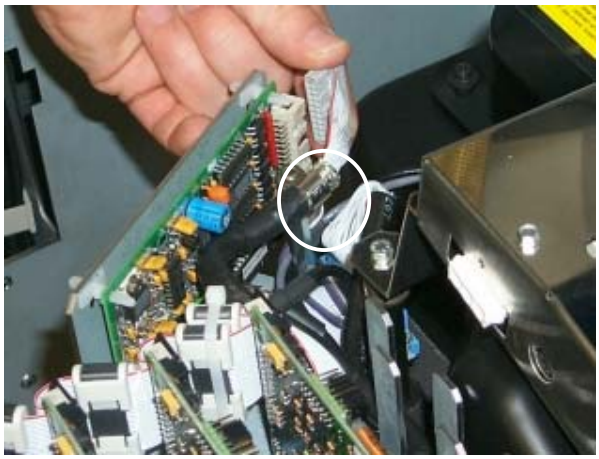


Figure 33

- disconnect the cable at the bottom of the RMS-board (white circle)...

- ... and disconnect the I/O bus cable beside the galvo box (no figure shown).

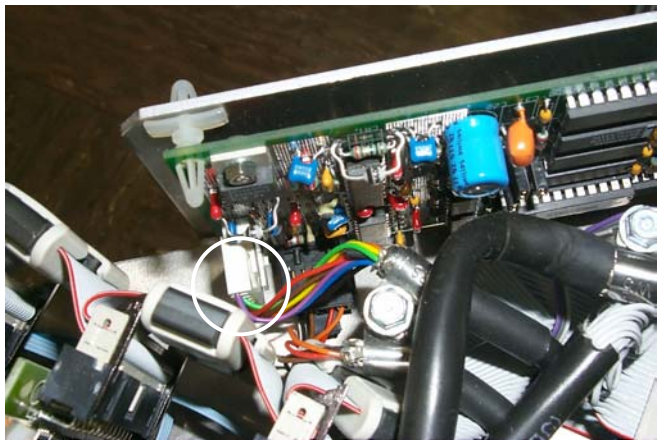


Figure 34

- loosen one screw (white arrow)

- disconnect four cables from St4 of the SM-boards.

Figure 35

⚠ Mind the colours of the cables when connecting the new scanner!

a:	**black – brown**
b:	**red - orange**
c:	**yellow – green**
d:	**blue – violet**

- remove the plug on the PM –module.

Figure 36

- loosen the energy chain with the aid of a screw driver...
- ... move it upwards and put it down on the frame of the machine.

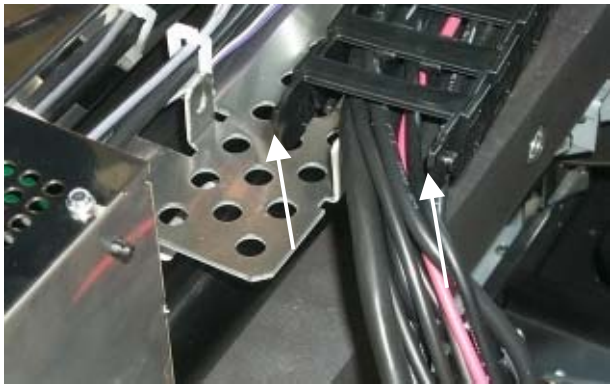


Figure 37

- unscrew the safety stops of the scanner rail.

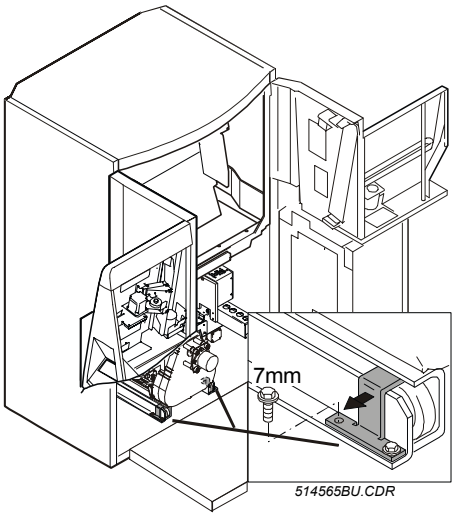


Figure 38

- lift the scan unit out of the machine

To lift out the scan unit safely, you need somebody who lends you a hand

Figure 39

6.2.3 Re-Installation of the Scan Unit

The re-installation of the scan unit takes place in reverse order as described above.

6.3 Replacing the Laser

6.3.1 General

When is it necessary to replace the Laser?

The laser performance on the image plane is measured continuously during operation by means of the pin diodes and then evaluated as follows:

17 mW:	laser power OK		
15 mW:	Warning in the infocounter, not visible for the client.		**The Laser must be replaced!**
11 mW:	Warning message on the user terminal for the client.		
7 mW:	Shut down (Digitizer blocks)		

Life span of the laser: 20000 - 25000 hours ≅ 3 years (24h a day, 7 days a week)

allen key, 3 mm
socket wrench, 7 mm
screwdriver

Scope of Delivery

Laser, labeled with	Laser S/N: Power: Date: Warranty until: Digitizer SN:	S/N of the manufacturer Laser power on the image plane Date of the measurement Expiration date of Laser manufacturer's warranty To be completed by the engineer after installation

Floppy, labeled with	**Laser Floppy** S/N: Power Date: Digitizer SN:	 S/N of the manufacturer Laser power on the image plane Date of the measurement To be completed by the engineer after installation

6.3.2 Replacement Procedure

- switch off the Digitizer.
- unlock the scan unit and pull it out.

A disconnect the laser from the laser power supply.

B disconnect all connectors (4 x) from the PM - HT power supply.

C unthread the cables from the cable holder.

D unscrew the PM - HT power supply.

E ☞ In the first machines which have been shipped, the PM - HT power supply is connected by screws from the other side, see **Figure 40** / E1. We recommend to unscrew the mounting board of the PCB's and push the mounting boards including the PCB's to the left for better access to these screws, see **Figure 40** / E2.

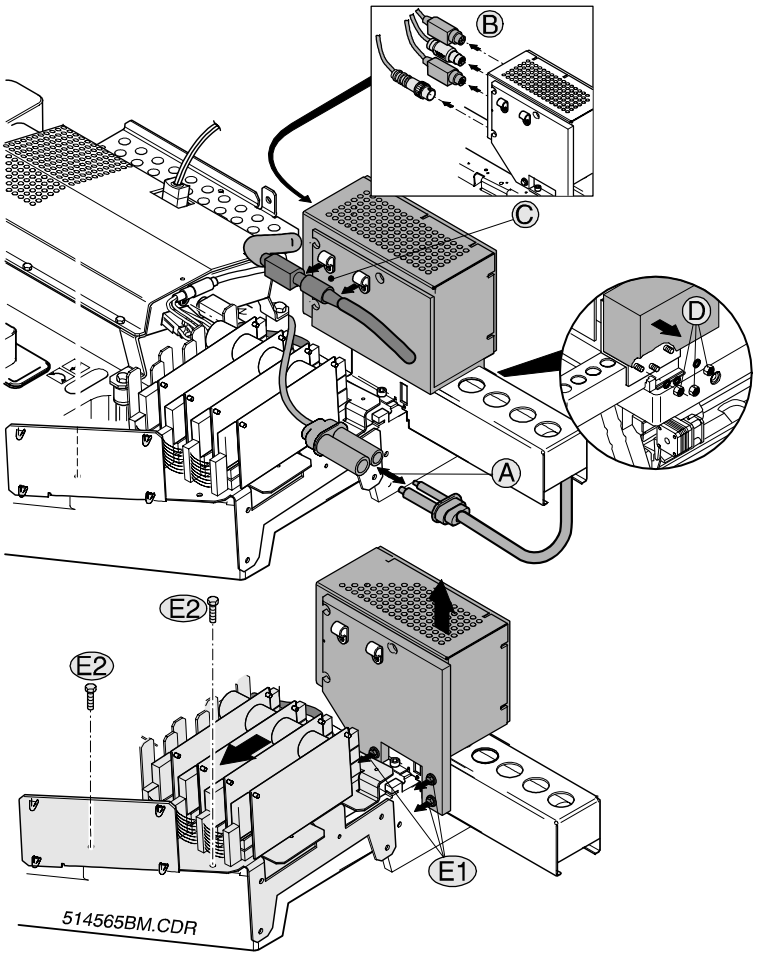


Figure 40

F unscrew the metal housing of the Laser.

G loosen the screw and open the leaf spring.

- exchange the laser.
- write the S/N of the Digitizer on the laser label.

J push the laser against the provided stop at the optic plate, then pull the laser back by approx. 0.5 mm in order to avoid tension on the laser due to expansion by heat.

- close the leaf spring and mount all removed parts.
- connect all disconnected cables.

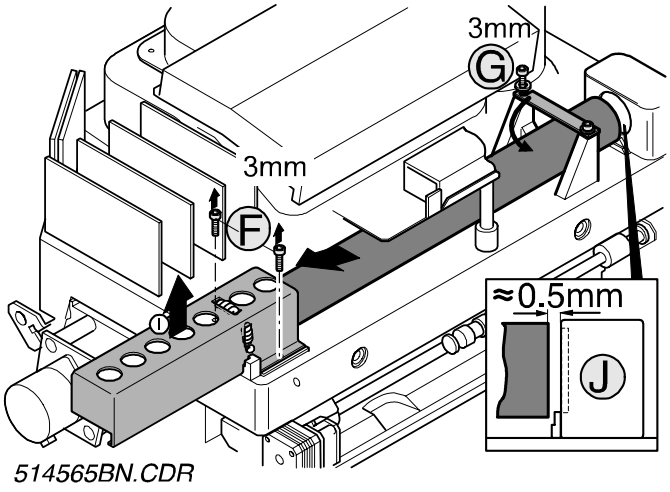


Figure 41

6.3.3 Putting the new Laser in Operation

The following installation procedure of the laser power value is realized as of software release >Cop_11xx.

If an older software is installed, please contact MI CSO to download the parameters via modem.

- switch on the Digitizer
- install the laser power value of the new laser from the enclosed floppy disk via the Service Menu at the user terminal
- select `INSTALL from floppy`
  `Laser power factor`

  The system requests you:
  - to compare the S/N given on the laser label with the S/N stored on the floppy disk. After confirmation the parameters are loaded.

    The serial number of the exchange part is automatically entered in the infocounter file under "HW Replacement history" together with date and counter stamp.
  - to update the backup
- reset the Digitizer by pressing the reset button
- wait until WARM UP is finished (≈ 30 min)
- check the laser beam
- select `Checks`
  `Laser beam`
  `Laser beam position` (The laser beam is spread to full scan width).

  The laser beam must be visible with the same light output on both fibers.

  If not, adjust the scan line with the Galvo adjustment screws.
- calibrate all the formats.
- check the image quality with flatfield exposures, see section 12 of this documentation.
- update the backup to save the calibration data
- select `Save on floppy`
  `Machine specific data`
- follow the online instructions.
- enter the S/N number of the Digitizer on the label of the laser floppy disk.

After expired warranty defective lasers must be disposed off locally in compliance with the country specific regulations. In order to avoid misusage, the Laser should be destroyed before disposal. To do that, cut the high voltage cable and remove it.

6.4 Replacing the Galvanometer

When to replace the Galvo?

- Jitters

It is recommended to remove the galvo only, if the limiting values of the galvo monitoring in the infocounter are exceeded as shown in the example below.

offset: >30

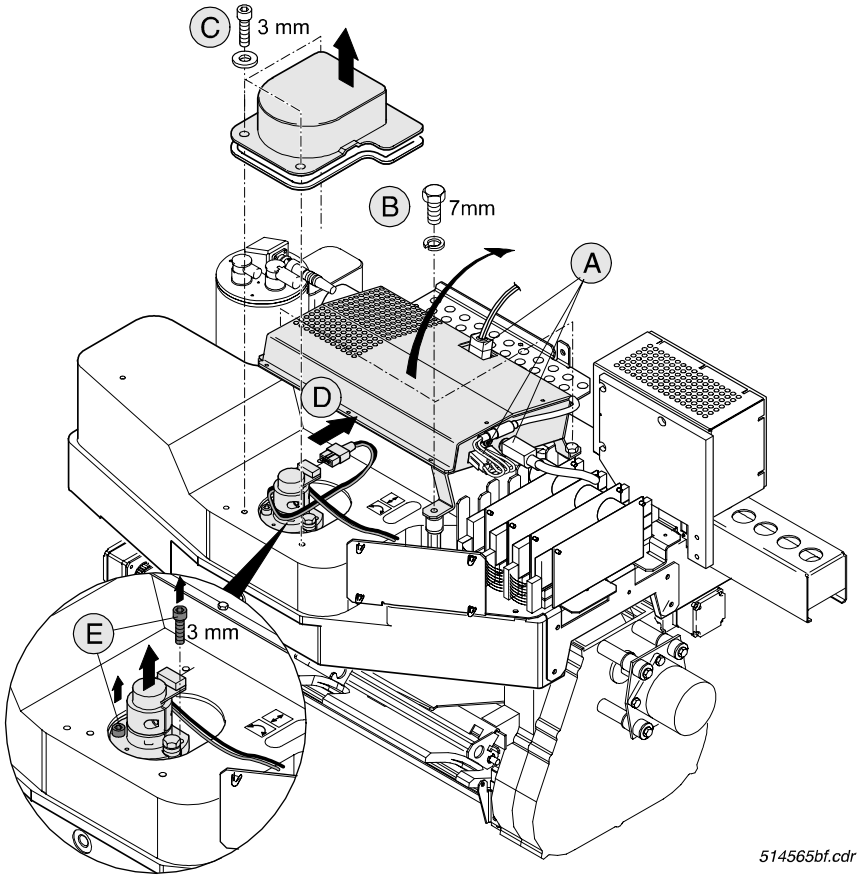
amplitude counts: >60

```
4.7 Galvanometer Monitoring
Maximum peak-to-peak offset counts: 30, amplitude counts: 60
Date            Time          Cycles    Offset      Amplitude
12-Sept-1999    11:29:15           3        37             62
```

allen key, 3 mm
socket wrench, 7 mm

6.4.1 Replacement Procedure

- switch off the digitizer.
- check that the feet rest on the floor. Otherwise it is possible, that the digitizer tilts, when you slide out the scan unit!
- open the doors.
- draw the Scan Unit out of the machine (see 6.1) to its safety stop.



- disconnect the 3 connections of the galvo driver board **(A)**.
- unscrew the flat metal box with the galvo driver board (3 screws) and remove it **(B)**.
- remove the dust cap (3 screws/ **C**).
- disconnect the galvanometer **(D)**.
- unscrew the galvo (only the 2 allen screws/ **E**).
- lift off the galvo carefully.
- write the SN of the Digitizer on the label of the new galvo.
- mount the new galvo.

Check the galvo for proper seat before fixing the screws! The galvo easily jams. If the galvo is not seated well, it will be difficult to adjust it afterwards.

- connect the galvo

If the galvo and the cable are connected in a wrong way, the galvo will be destroyed.

Figure 42

- install the new galvo driver board.
- connect all disconnected cables of the galvo driver board.
- push the scan unit back to its place slowly and lock the safety screws again.
- close the doors.

6.4.2 Putting the New Galvo in Operation

- switch on the Digitizer.
- install the galvo parameters from the enclosed floppy disk via the Service Menu at the user terminal.
- select at the user terminal:

```
Service Menu
    Install from floppy
        Galvo curve
```

The system requests to compare the SN on the Galvo label and the SN stored on the floppy disk. After confirmation, the parameters are loaded.

The serial number of the exchange part is automatically entered in the infocounter file under "HW Replacement history" together with date and counter stamp.

- update the backup.

Checking the Laser Beam

- switch on the Digitizer and wait until WARM UP is finished (approx. 30 min)
- select at the user terminal

```
Service Menu
        Checks
                Check laser
                        Laser beam position
```

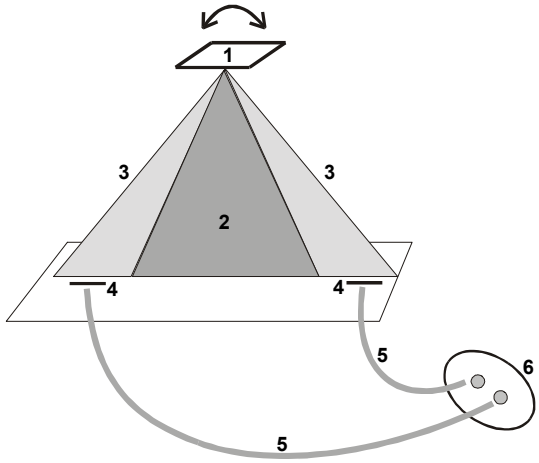
The command *Laser beam position* switches the Laser beam to maximum scan width.

- check if the laser beam is visible with the same light output on both fibre spots
- if the light output of both fibre spots is not even, continue with the adjustment of the laser beam described in the following chapter.
  This is always necessary after the galvomount bas been replaced.

Adjustment of the Laser Beam

Principle:

1. galvo mirror
2. small scanwidth: slits (4) cannot be illuminated
3. broad scanwidth: slits are illuminated = highest amplitude of the galvo
4. slits on the PIN diodes plate
5. optical fibres
6. fibre spots: adjustment is correct, when both spots are on (red light visible)



Background information: The command `laser beam position` causes the galvo to operate with the highest amplitude. Only then the slits on the PIN diodes plate are illuminated.

Adjustment Procedure:

see section 6.6

Calibration

Make a new calibration of all formats; see section 6.6

To avoid calibration problems see Section 6.3, item 7.4

Finishing the Installation

- leave the Service Menu

6.5 Replacing the Galvomount

6.5.1 General

Problem

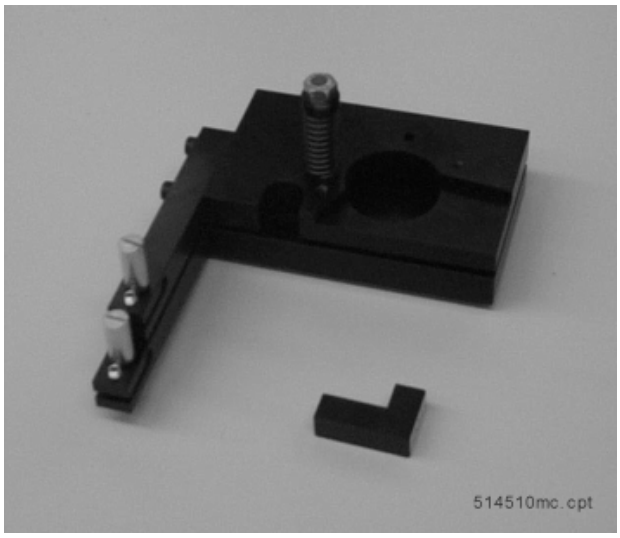
With machines on which the galvanometer has been exchanged quite often, it can occur that the galvomount becomes defective.

Solution

A new assembly has been created comprising a galvomount with modified adjustment screws (steel, nickel-coated and greased).

Scope of Delivery

- 1 x galvomount with sticked in pin and ball and one fastening screw
- 1 x adjustment piece
- 1 x installation instructions



Required tools

- 1 x „Philips“-screwdriver
- 1 x socket wrench 13 mm
- 1 x socket wrench 10 mm

6.5.2 Removal of the Scan Unit

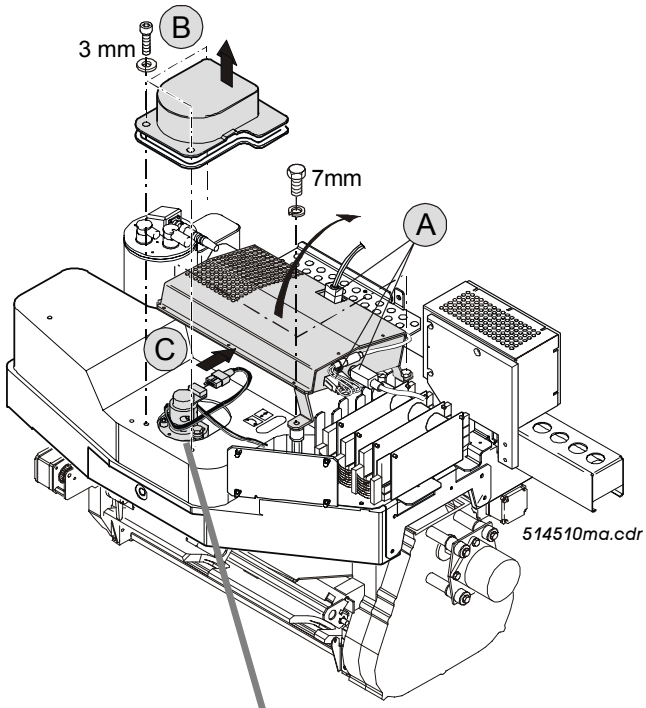
To exchange the galvomount with ADC Compact, it is not necessary to remove the scan unit completely.

- switch off the digitizer.
- open the front doors.
- unlock the scan unit and pull it out to its stop.

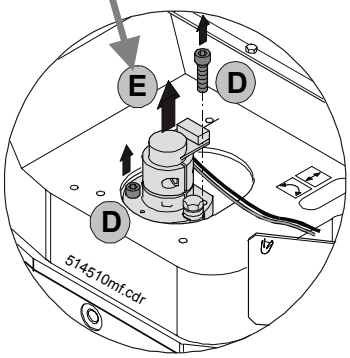
6.5.3 Replacement of the Galvomount

- disconnect and remove the galvo driver board **(A)**.
- unscrew the dust cap and remove it **(B)**. (ADC Solo: the screws should remain in the dust cap and not be removed completely).
- disconnect the galvo **(C)**.

make sure the plug is reconnected the right way at the end of the installation.

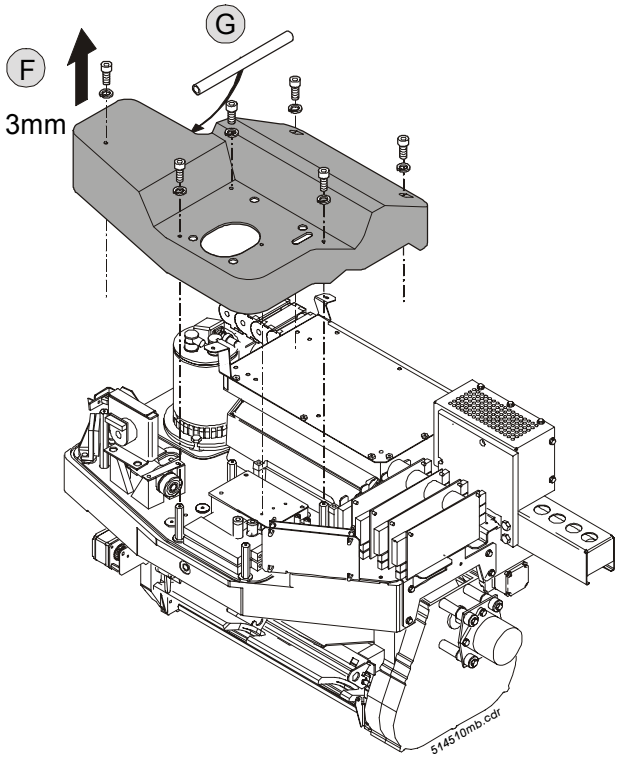


- unscrew the galvo two allen screws **(D)**.
- lift off the galvo carefully and put it aside at a place where it won't be damaged **(E).**

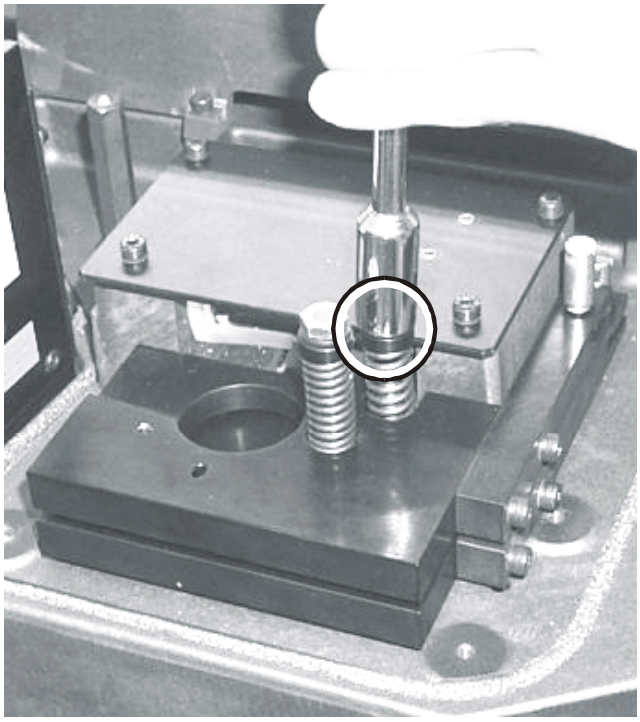


- unscrew the cover and remove it **(F)**.

- unplug the PVC pipe from the boring of the hood **(G)**.



- loosen and remove the outer one of the screws (circle) with a 10mm socket wrench.



do not loosen or remove the inner screw.

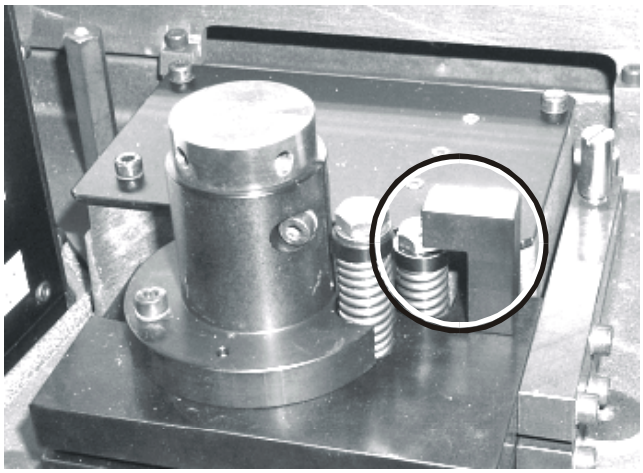
- remove the galvomount as well as ball **(H)** and pin **(I)** from underneath the galvomount.

do not throw away screw and spring **(J)**, since they are needed again for the installation.

- put the new galvomount at its place and secure it with the screw you put aside beforehand.

ball and pin are firmly joined to the galvomount and cannot fall down any more.

- screw in the screw only so deep that its head fits exactly under the bar of the adjustment piece (see circle).



- put the galvo at its place again and secure it with the allen screws.

6.5.4 Re-assembling the Scan Unit

- mount the scan unit and put it back into the digitizer in reverse order as described in chapter 3 and in chapter 2.

6.5.5 Adjustment of the Laser Beam

After the replacement of the galvomount it is necessary to adjust the laser beam.

- select: **Service menu/test and adjust/laser beam position**
  to start the adjustment procedure when software COP_1112 is loaded...

or

- select: **Service menu/checks/laser beam position**
  to start the adjustment procedure when software COP_1215 is loaded.

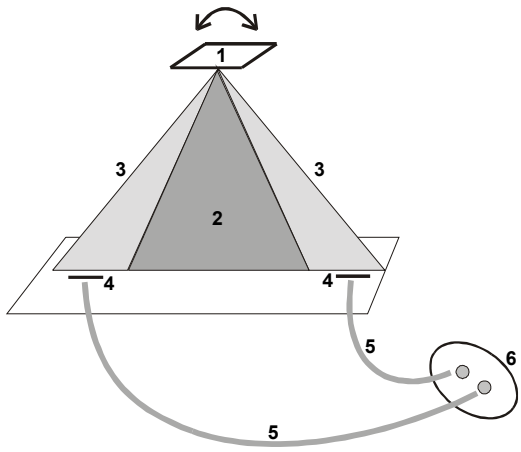
- both fibre spots should be on, if this is not the case the height- and the side-adjustment have to be varied until the fibre spots shine simultaneously.

- if the laser beam is completely misadjusted (e.g. after the galvomount has been replaced) first turn the height-adjustment screw until one fibre spot turns red;
  then turn the side-adjustment screw until the second fibre spot turns red.

It happens quite often that the first fibre spot goes out again. Turn the side-adjustment screw then until the second fibre spot turns red. Keep on turning until the second fibre spot appears a second time. Remember the amount of turns between the two control spots and turn the screw half way back. Do the height-adjustment once again until both fibre spots light up.

Principle:

- galvo mirror **(1)**
- small scanwidth **(2)**: slits **(4)** cannot be illuminated
- broad scanwidth **(3)**: slits are illuminated = highest amplitude of the galvo
- slits on the PIN diodes plate **(4)**
- optical fibres **(5)**
- fibre spots **(6)**: adjustment is correct, when both spots are on (red light visible)



Background information: The command laser beam position causes the galvo to operate with the highest amplitude. Only then the slits on the PIN diodes plate are illuminated.

6.5.6 Calibration

- Make a new calibration of all formats, see section 6.6 and section 6.3, item 7.4.

6.6 Replacing the Photomultiplier

When to exchange?

Sudden density changes in fast scan direction

Required Tools

none

Scope of Delivery

Photomultiplier tube with I/V converter, labeled with	S/N: mfa: mfb: Date: Warranty until: Digitizer SN:	S/N of the manufacturer determined mfa value determined mfb value Date when the values were determined Expiration date of the manufacturer's warranty To be entered by the engineer after installation

Floppy disk with mfa, mfb factor, labeled with:	**PMT - Floppy** S/N: mfa: mfb: Date: Digitizer SN:	 S/N of the manufacturer determined mfa value determined mfb value Date when the values were determined To be entered by the engineer after installation

The PM-HT power supply can be replaced independently.

Replacement Procedure

- switch off the Digitizer.
- unlock the scan unit and pull it out.

A Disconnect the three cables of the PM

B Slide the O-ring down onto the housing

C: Unlock the photomultiplier

D: Pull the photomultiplier upwards and remove it

- check the new PM for dust and lint and insert the new PM carefully.
- write the S/N of the Digitizer on the label of the new photomultiplier.
- insert the new photomultiplier and lock it.
- attach the O-ring.
- connect all disconnected cables.

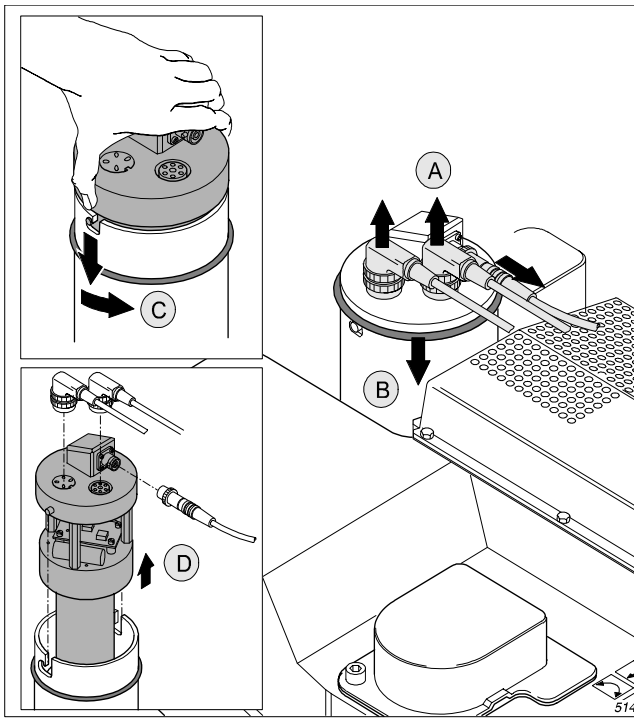


Figure 43

Putting the new Photomultiplier in Operation

The following installation procedure of the mfa / mfb parameters is realized as of software release >Cop_11xx.

- switch on the Digitizer
- install the mfa / mfb parameters from the enclosed floppy disk via the Service Menu at the user terminal
- select `<INSTALL from floppy>`
  `<Mfa/mfb>`

  The system requests:

  - to compare the S/N on the photomultiplier and the S/N stored on the floppy disk. After confirmation the parameters are loaded.

    The serial number of the exchange part is automatically entered in the infocounter file under "HW Replacement history" together with date and counter stamp.

  - to update the backup.
- calibrate all formats, see section 6.6.
- check the image quality with test sheet and flatfield exposures, see section 6.6.
- update the backup to save the calibration data.
- select `<Save on floppy>`
  `<Machine specific data>`
- follow the on-line instructions.
- enter the S/N number of the Digitizer on the label of the photomultiplier floppy disk.

The PM HT-power supply can be changed independently. No parameter download or further adjustments are necessary!

6.7 Replacing the Rotating Shutter

When to exchange?

Defect of the component

Required Tools

- allen key, 3 mm
- socket wrench, 7 mm

Scope of Delivery

- rotating shutter

Replacing the Rotating Shutter

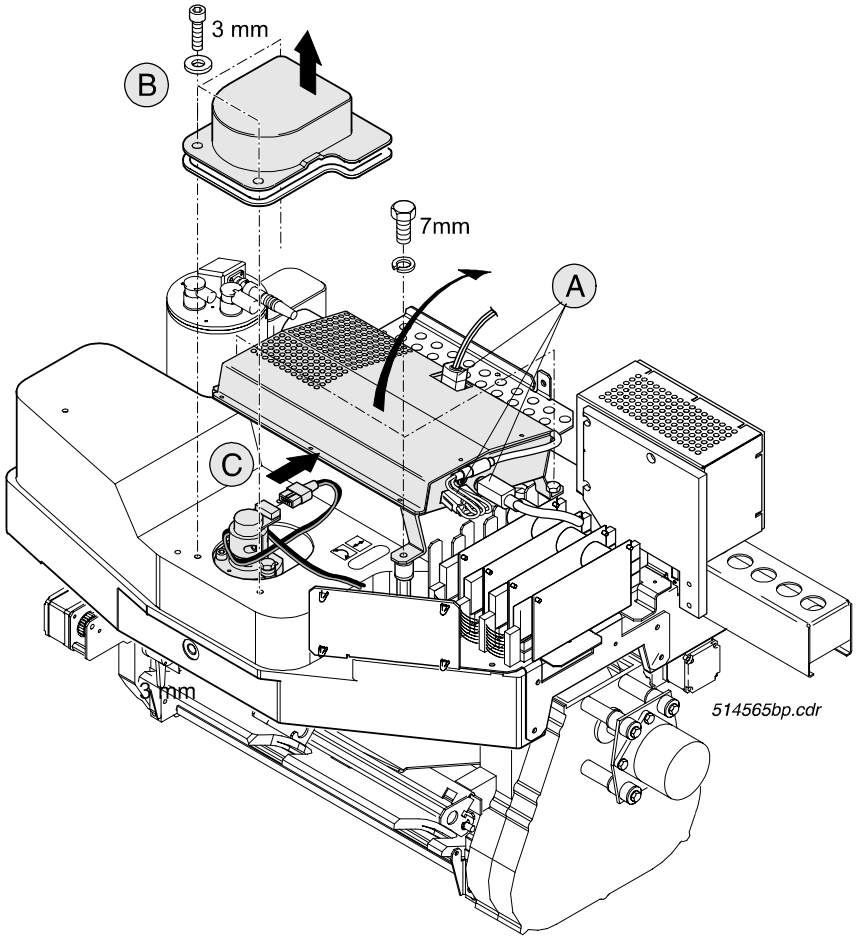


Figure 44

- switch off the Digitizer.
- unlock the scan unit and pull it out.

A: disconnect and remove the galvo driver board.

B: unscrew the dust cap and remove it.

C: disconnect the galvo.

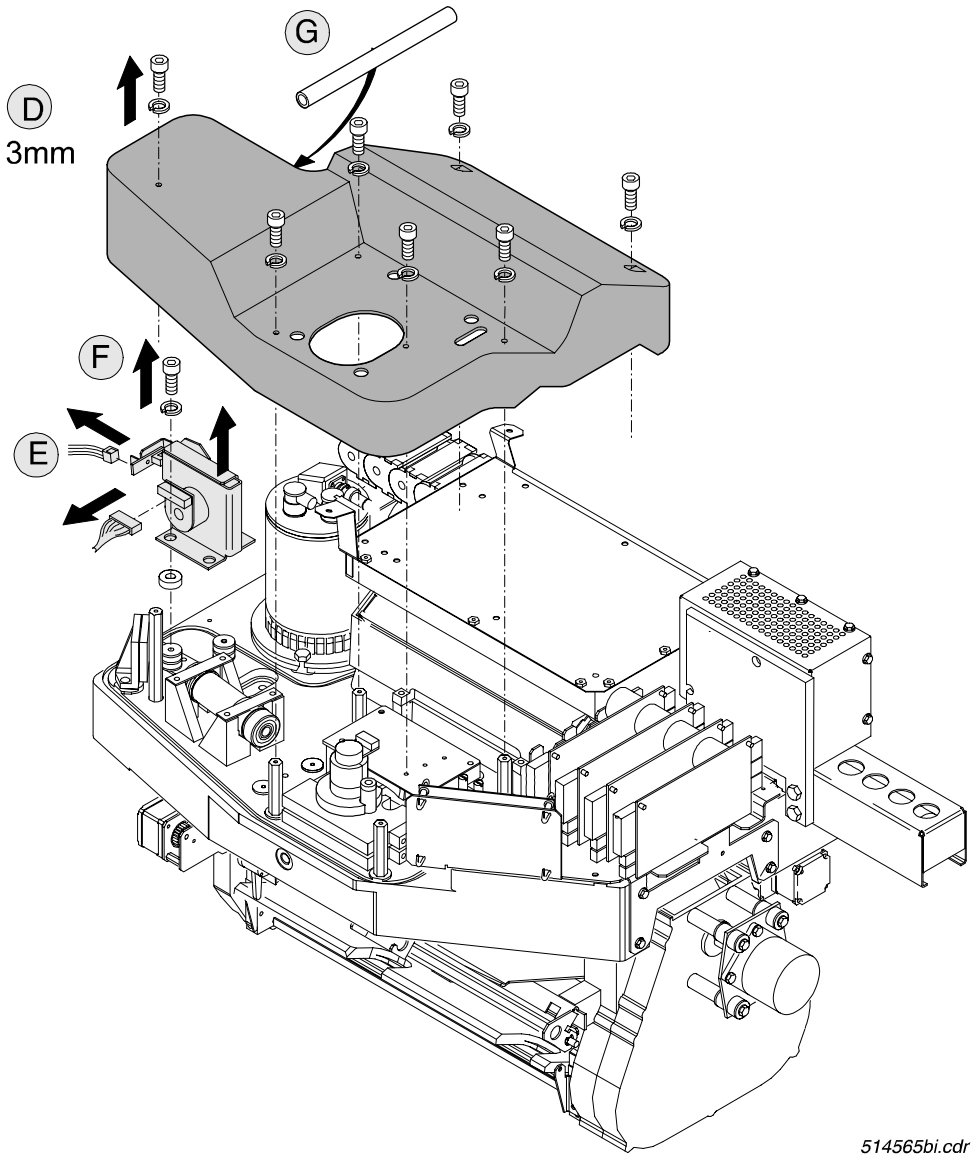


Figure 45

D: unscrew the cover and remove it.

E: disconnect the cables at the rotating shutter (2 x).

F: loosen the screw connection of the rotating shutter.

- install the new rotating shutter and connect it.
- plug the cables back in.
- mount the covers again.

Plug the PVC pipe, see Figure 45 G, back into the boring of the hood.

- switch on the Digitizer.
- check the image quality with test sheet and flatfield exposures, see section 6.6.

6.8 Replacing the PIN DIODES PCB

6.8.1 General

Scope of Delivery

Pin diode PCB:	S/N: PD-Factor: Date: Digitizer SN:	Clearly assigned identification number Determined pin diode factor Date when the values were determined To be completed by the engineer after installation

Floppy disk with PD factor labeled with:	**Pindiode floppy** S/N: PD-Factor: Date: Digitizer SN:	Clearly assigned identification number Determined pin diode factor Date when the values were determined To be completed by the engineer after installation

Required Tools socket wrench 5.5 mm

6.8.2 Replacement of the Pin Diodes PCB

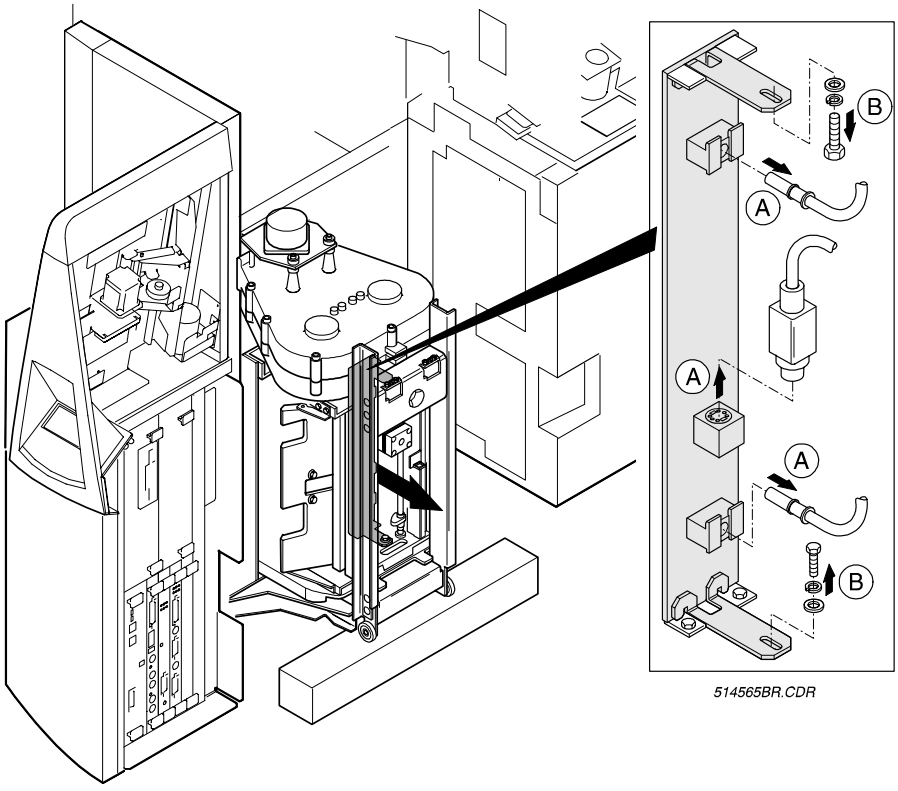


Figure 46

- switch off the Digitizer.
- slide out the scan unit, see 6.1.
- disconnect the cables (3 x) **(A).**
- loosen both brackets **(B); do not remove the screws completely as it would be very difficult to place them again !**
- mount the new pin diodes PCB

- install the scan unit again

Start up the Pin Diodes PCB

The following installation procedure of the PD factor is realized as of software release >Cop_11xx.

- Install the PD factor from the enclosed floppy disk via the Service Menu at the user terminal
  Select `INSTALL from floppy`
  `Pin-diode factor`
  Follow the on-line instructions:
- Wait until the WARM UP is finished (≈ 30 min)
- Check the Laser beam
- Select `Checks`
  `Laser beam position` (The Laser beam is spread to full scan width).
  The Laser beam must be visible with the same light output on both fibers.
  If not, adjust the scan line with the Galvo
- Calibrate all formats
- Check the image quality with test sheet and flatfield exposures, see section 6.6
- Update the backup to save the calibration data
- Select `Save on floppy`
  `Machine specific data`
  Follow the on-line instructions:
- Write the S/N number of the Digitizer on the label of the pin diode floppy disk.

6.9 Replacing the Postscan Bar

Scope of Delivery:

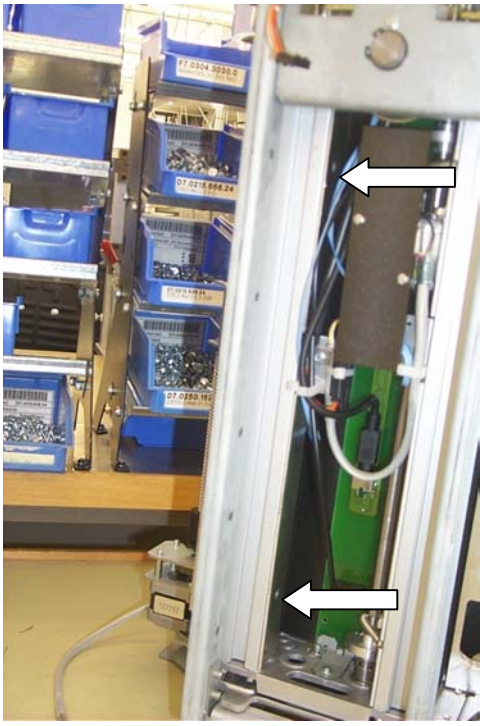
- 1 x postscan bar
- 1 x light barrier holder
- 1 x installation instructions
- 1 x hardware modification floppy

Required Tools:

1 x open end wrench 10 mm
1 x socket wrench 5.5 mm
1 x angular allen key 2.5 mm

- switch off the digitizer.
- open the doors.
- slide out the Scan Unit as described in 6.1.
  To install the postscan bar, it is <u>not</u> necessary to remove the scan unit completely.

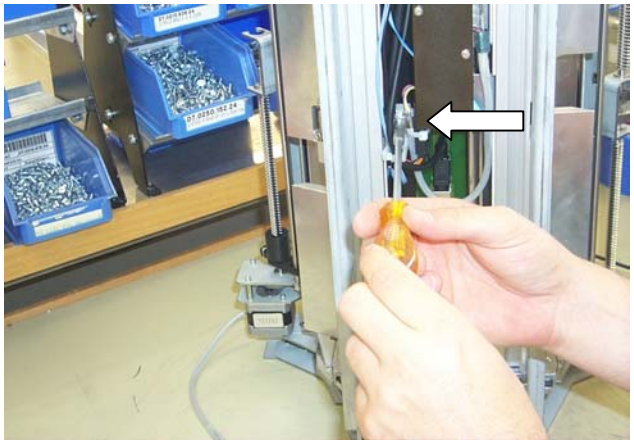
Replacement Procedure of the Postscan Bar



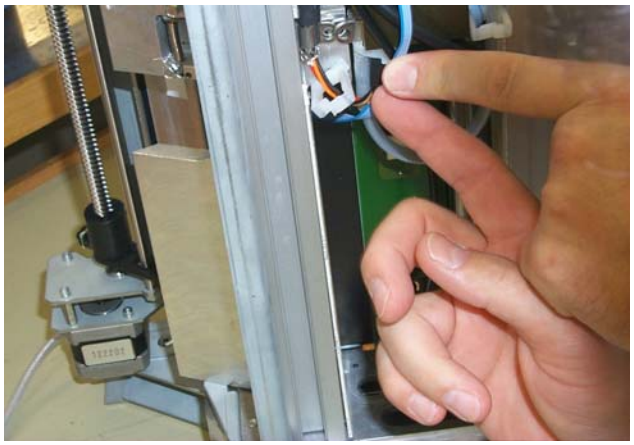
- loosen the two screws (arrows).

Note:

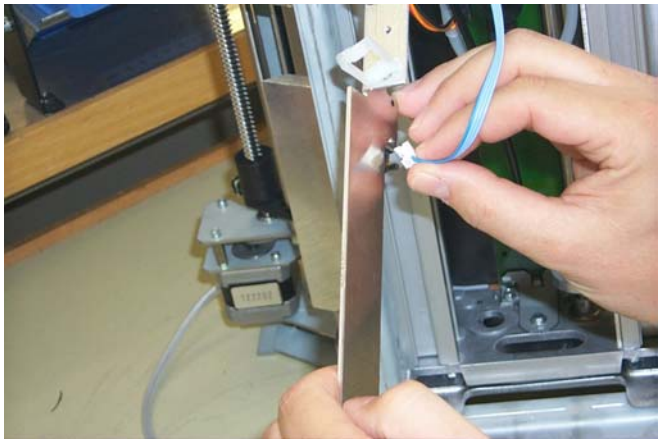
The sliders inside the aluminium extrusion will move down and have to be repositioned later.



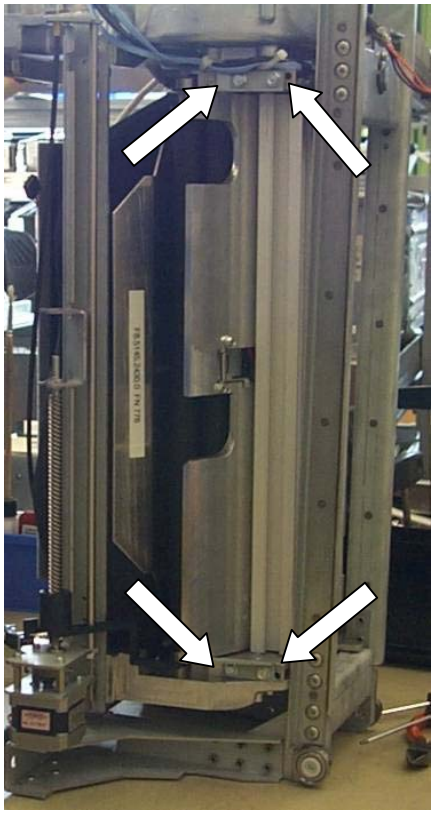
- loosen the screw and remove the grounding clamp (arrow).



- remove the cables from the plastic cable clamp and...

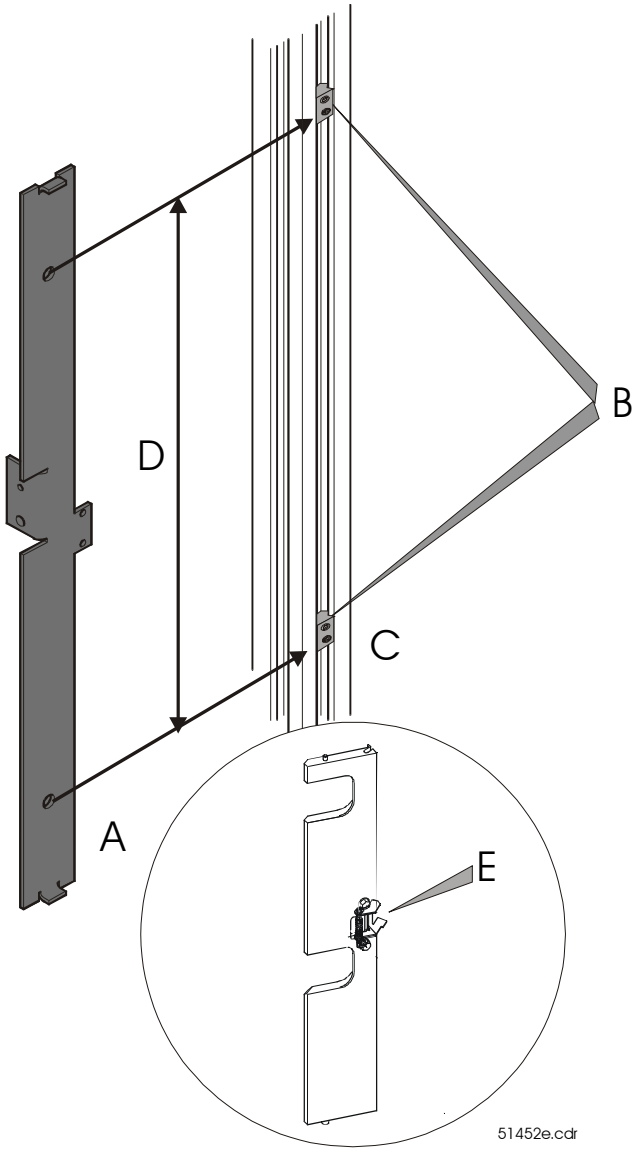


- ... pull out the light barrier holder then.
- disconnect the light barrier.
- loosen one screw to remove the light barrier.
- remove the plastic cable clamp.



- loosen the four screws (arrows) and remove the postscan-bar.
- install the new postscan-bar.

Installation of the Lightbarrier Holder



For the installation of the new lightbarrier holder (A), you have to reposition the two sliders(B) in the aluminium brace (C):

- hold the light barrier holder (A) beside the aluminium brace to compare the distance of the bearings (D) with the distance of the sliders.

If the distance is approximately the same, fix the sliders in a way they can be moved, but don't slip.

- install the light barrier and the plastic clamp on the light barrier holder.
- put the light barrier holder on the aluminium brace and, if necessary, move the sliders until the tapped holes of the sliders and the bearings of the holder are aligned.
- insert both screws and tighten them slighty...
- check:

  Is there enough space between the light barrier and the follow lever (E) of the postscan bar?
  Is the light barrier holder snugly seated?
- if this is okay, tighten the screws and...

- ...connect the light barrier.
- install the grounding clamp.
- place the cables in the cable clamp.
- reinstall the scan unit in reverse order.

Note:

Before pushing in the scan unit completely, control the cable connections of the energy chain and the HT-box.

Finishing the Installation

- start the digitizer
  - insert the Hardware Modification floppy (requires min. COP_1215) and call up the service Menu

    Select: `(5) Install from floppy`

    `(9) (scroll) HW modification ID`

    ⇨The modification is stored in the infocounter of the digitizer..

Note: The hardware modification floppy has no influence on the result of the modification.
It is needed for the entries in the Infocounter.

Confirm "Repair"

- select `confirm this service intervention`

  `repair`

  and press OK

- clear the Infocounter.

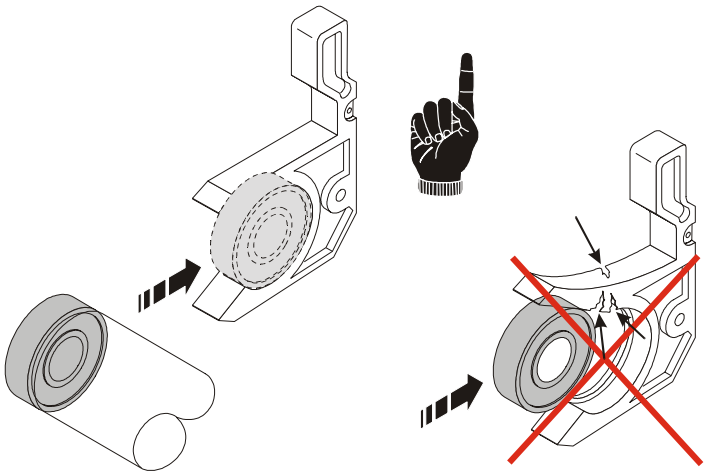
6.10 Inserting the Cleaning Brush in the Scan Unit

The cleaning brush has to be inserted by means of a thin steel wire. Hold the steel wire close to the Scanner and push the brush in, step by step, be careful to avoid bending of the steel wire.

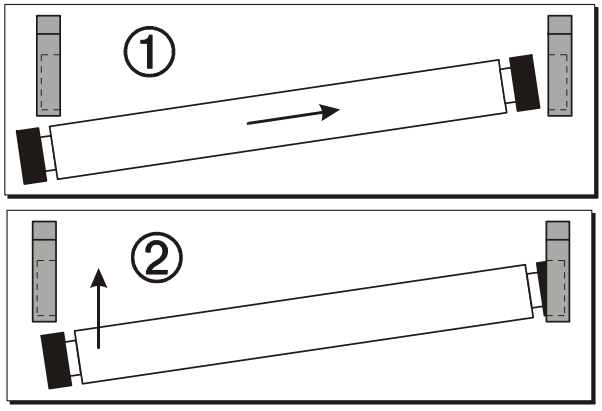
6.11 Reinserting the outer Scan Rollers

The scan rollers have to be removed and reinserted with every maintenance cycle.

Reinsertion must be done very carefully because the c-clips to hold the scan rollers can easily break, and if they are damaged the whole scanner needs to be replaced!



The risk is to bring the scan roller on the outer rim of the c-clip, where the radius is smaller than the scan roller, and the resulting stress may destroy the c-clips!

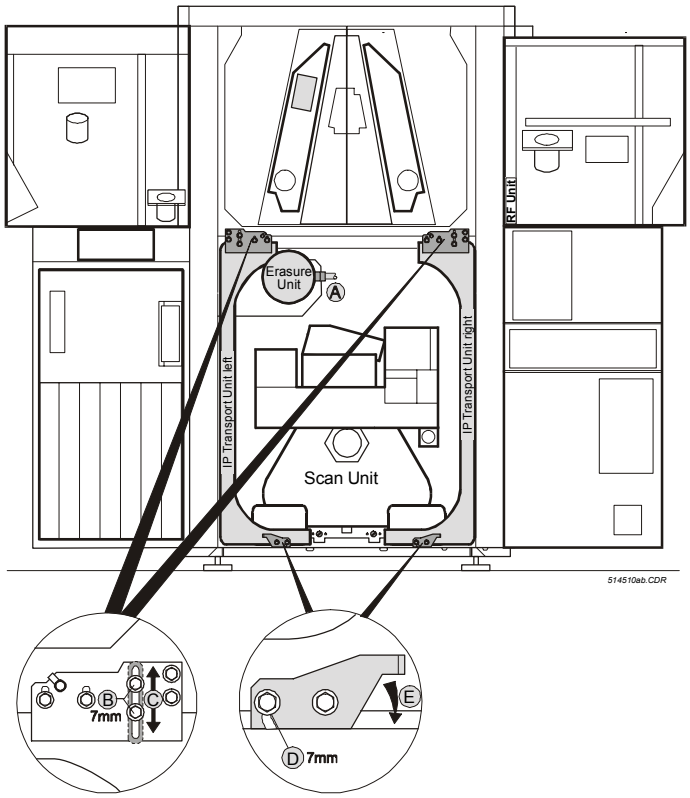


1. Take the scan roller, diagonal to the c-clips, in your hands. Move the higher part of the scan roller from the side into the c-clip to its stop.

2. Move the lower part of the scan roller carefully upwards in the c-clip. If it is very hard to put it in, check again if the other part is still on its stop! Do not push in with high force!

7 IP – Transport Units (Assemblies 600, 650)

7.1 Sliding out the IP – Transport Units



1. Open the doors of the machine.

   All the assemblies have a safety stop when being pulled out!

2. IP transport unit left hand side: **Disconnect the erasure unit** (A) before pulling out the transport unit!

3. Loosen screws (B, C, 7mm) on both IP transport units and push the lock down.

4. Loosen screw (D) on both IP transport units and press bar (E) down to unlock.

5. IP transport unit right hand side: Upon sliding the unit in, make sure that the energy chain does not catch anywhere and gets damaged!

7.2 Installation of IP – Transport Robots (Input / Output)

Mechanical Installation of IP-Transport robots is for Input, Output and for all types of robots in principle the same procedure.

Installation Time

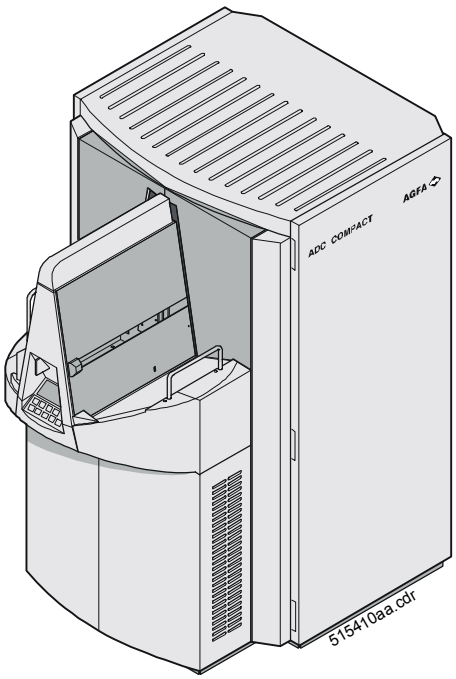
approximately 45 min.

Required Tools

(Software Requirements see Section 6.6)

- Spanner 7mm
- Small flashlight
- Fitting Instructions

7.2.1 Preparations

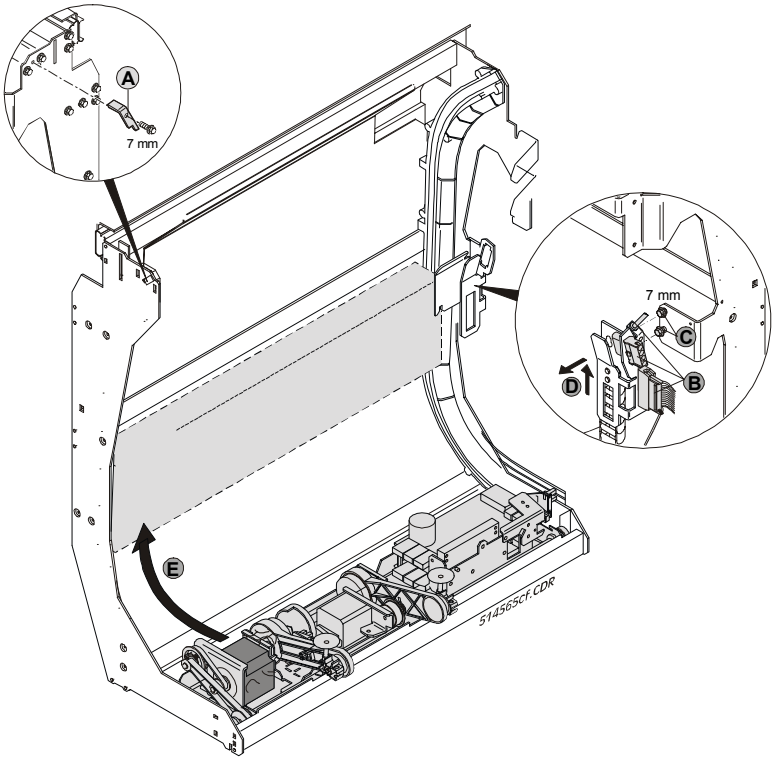


Safety Precautions

Check if the following safety precautions were taken before you start with the modification:

- Switch off the machine
- Installation, troubleshooting, as well as any electrical and mechanical repairs must only be made by authorised Agfa Service Engineers.
- Slide out the IP – transport unit (left, right or both) -> see 7.1

7.2.2 Removal of the old Robot



Unlock the IP transport unit and pull it out:

A: Unscrew the locks

B: Unplug the cable (2x) and the hose

C: Loosen both screws and unhook the holder

D: Unhook the mounting bracket

E: Push the robot up and remove it from the frame

7.2.3 Installation of the new Robot

1. Install the new robot in reverse order.

Make sure that the robot is placed exactly parallel in the guide rail of the frame.

2. Reinstall the IP transport unit in reverse order as described in 7.1 .

7.2.4 Finishing the Installation

1. Run an adjustment cycle to check if the robot works properly and to define the return position of the IP. See Section 6.6

2. Insert the hardware modification floppy

```
install from floppy
                    (9) hardware modification
```

The hardware modification floppy has no influence on the result of the modification. It is needed for the entries in the Infocounter.

3. Select

```
confirm this service intervention
                                  repair
```

and press ✓

4. Clear the Infocounter

8 Cassette Units (Assemblies 700, 750)

8.1 Swiveling the Cassette Units in and out

- Open the lock of the cassette units, see Figure 47A

- To swivel the cassette units out, see Figure 47
  B → D

- To swivel the cassette units in, see Figure 47
  D → B + E

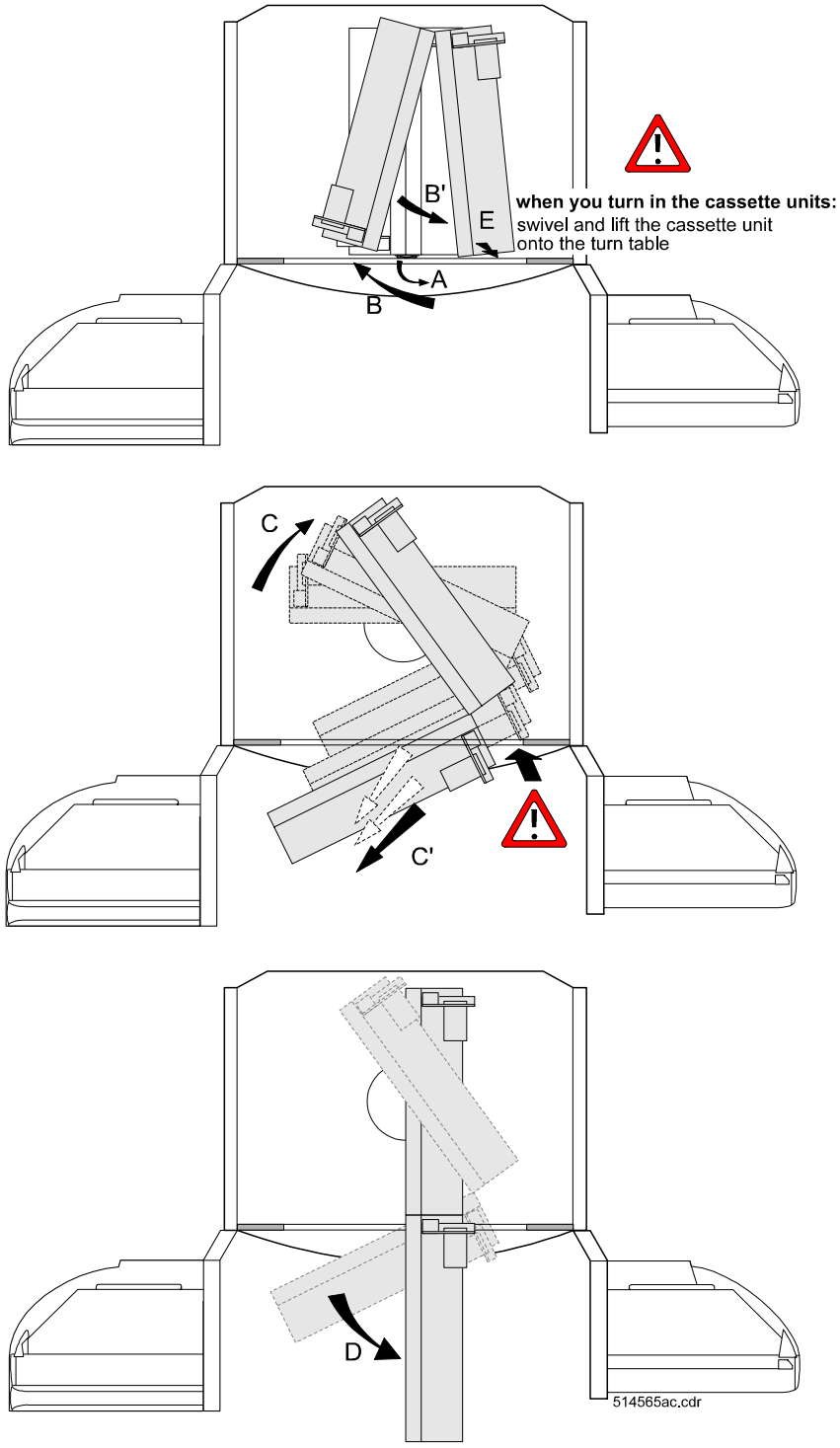


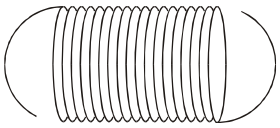
Figure 47

9 I / O Buffer (Assembly 900, 930, 950)

9.1 Exchange Springs in Output Buffer

Due to a long period of use the springs pulling the transport rollers together may break.

Insert new helical springs at the output buffer.



CM+9.0335.0071.0

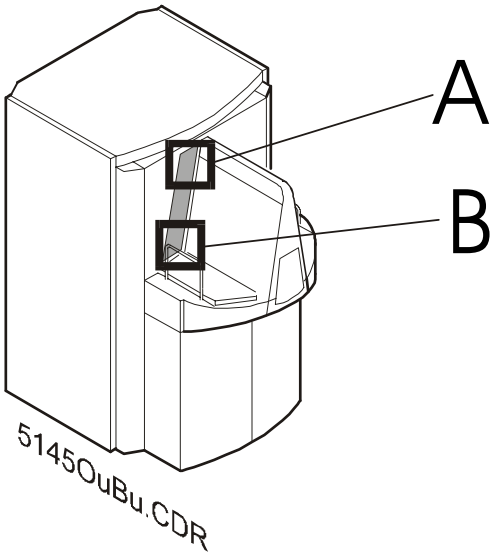


Figure 48

Angled pliers or large tweezers.

Exchange of the helical springs

1. Open the left front door of the ADC Compact.
2. Move the press-on rolls (1 and 2) close together.

Exchange of the top spring (A):

3. To work more comfortly turn the spring holder (3) clockwise for a quarter turn. A little bit of pressure is required.
4. Use angled pliers to remove the broken spring.
5. Insert the new spring bottom up into the plastic holder (4).
6. Move the spring holder (3) couterclockwise in its original position.
7. Insert the other end of the spring top down into the metal holder (5).

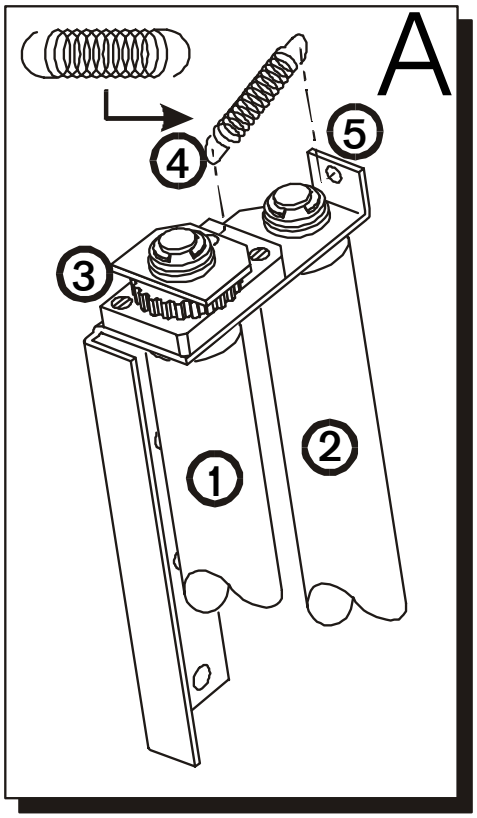


Figure 49

Exchange of the bottom spring (B):

8. Proceed as described in section (A) except that the new spring is being inserted top down at the plastic holder (1) and bottom up at the metal holder (2).

Always exchange both springs, even if only one spring was broken.

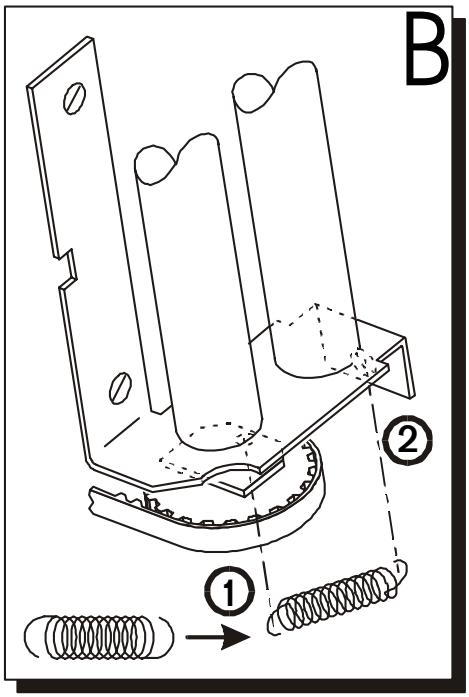


Figure 50